나무위키

Whonix

최근 수정 시각: 2026-07-06 23:03:00

분류:Debian | 컴퓨터 보안

Linux
배포판

[펼치기 · 접기]

Whonix **호닉스**	
개발	Whonix 프로젝트(아돌프 엘리아스 벨)
기반	Debian
커널	Linux
최초 출시	2012년 7월 (Debian 7 기반)
플랫폼	x86-64, AArch64
특징	Tor 네트워크 전용, Gateway+Workstation 2VM 구조, 완전한 네트워크 격리, 익명성 보장
홈페이지	

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1. 개요

Whonix는 Tor, 데비안, 가상머신에 기반한 일반적인 익명 전용 운영체제이다.

현존하는 Tor 관련 프로그램 중 가장 안전한 익명을 자랑한다.
Tor 기반이라는 점은 동일하지만, Tails OS와는 아예 다른 운영체제이고 둘의 용도가 다르다.

2. 보안 및 익명성

Whonix 구조상 IP 주소 및 DNS 누출은 불가능하다. 심지어 맬웨어조차도 IP 주소나 실제 위치를 얻을 수 없다.

Gateway 부분과 Workstation 부분으로 나뉘는데 Gateway는 Tor와 Workstation 부분의 통신을 중계한다.

Workstation 부분은 사용자가 직접 사용하는 부분으로 오직 통신은 Gateway 부분을 통해서만 가능하다.

3. 특징

Whonix는 다른 운영체제와는 다르게 오직 가상머신에서만 작동한다. 따라서 거의 모든 운영체제에서 사용하는 것이 가능하다. 보통 VirtualBox나 QEMU에서 사용한다.

기본적으로 가상머신에서 돌아가기 때문에 바이러스나 맬웨어도 통하지 않는다.

기본적으로 모든 인터넷이 Gateway에 Tor를 거치기 때문에 보안면에서 다른 운영체제에 비해 월등하다.

보안 OS 중 하나인 Qubes OS에서 사용하면 더 좋을 것이 없다.

4. Tails OS vs Whonix

두 리눅스 OS는 각각 정보 은폐에서의 양대산맥이라고 말할 수 있다.

Whonix는 IP 유출을 막는데 강하고 Tails OS는 공격자 급습에 대비하는 데 강하다.

Whonix는 이용하다가 악성코드를 먹어도 원래의 IP를 취득하기 힘들다.

Tails OS는 누가 들이닥쳐도 Tails OS가 설치되어 있는 USB를 뽑으면 컴퓨터가 바로 꺼지고 컴퓨터로 뭘 했는지 알 수 없다.[1]

IP 추적 방지에 모든 걸 쏟은 건 Whonix이고 컴퓨터 사용기록 인멸에 신경을 쓴 건 Tails OS이다.

자신에게 적합한 OS를 쓰면 된다.

~~Tails OS 안에 가상머신을 설치해서 거기 안에서 Whonix를 돌리는 건?~~
2024-10-16 기준, Tails OS는 Tails 호스트 내에서 가상 머신을 실행하기 위한 솔루션을 제공하지 않는다.🔗 * 따라서 Tails 호스트 내에서 가상 머신을 실행하면 정상적으로 구동되지 않을 수 있다.

5. 이미지로 보는 설치방법

주의: 틀린 내용이 있을 수 있으므로 교차검증을 하는 것이 좋다.

Whonix는 크게 다음 세 단계의 과정을 거쳐서 설치한다.

1. 먼저 Host OS[2]를 고른 뒤 이를 설치한다.
2. 가상머신[3]을 고른 뒤 이를 설치한다.
3. Whonix를 설치한다.

1단계: Windows + Virtualbox + Whonix 조합.🔗#,🔗#[4],🔗#
2단계: LinuxMint + Virtualbox + Whonix 조합.🔗#,🔗# [5]
3단계: Debian + Virtualbox + Whonix 조합.🔗#[6],🔗#,🔗#,🔗#
4단계: Debian + KVM + Whonix 조합.🔗#
5단계: Debian(Host Live mode) + KVM + Whonix(VM Live mode) 조합.🔗#
6단계: Kicksecure OS + Virtualbox or KVM + Whonix 조합.🔗#[7],🔗#,🔗#,🔗#,🔗#,🔗#
7단계: Qubes OS + Whonix 조합.🔗#

1단계: Virtualbox와 Whonix를 설치하는 과정을 이해한다.
2단계: 리눅스라는 OS를 설치하는 과정을 이해한다.
3단계: 데비안을 설치하는 과정을 이해한다.
4단계: KVM의 설치 및 사용 방법을 이해한다.
5단계: Live mode(종료 시 초기화)의 사용 방법을 이해한다.
6단계: Kicksecure OS를 설치하는 과정을 이해한다.
7단계: Qubes OS를 설치하는 과정을 이해한다.

Whonix 업데이트할 때를 제외하고 평소에는 VM Live mode 상태에서만 이용하는 것을 권장한다. VM Live mode는 Qubes OS를 제외하면 Host OS가 어떤 것이든 이용할 수 있다. Qubes OS에서는 Disposable VM을 쓰면 된다.

특별한 이유가 없다면 Host OS를 내장 SSD에 설치하는 것을 권장한다. 위 가이드글들이 USB에 Host OS를 설치하는 것을 보고 오해할 수도 있는데, Host OS를 내장 SSD에 설치하는 것이 USB에 설치하는 것보다 더 좋다. Host OS를 USB에 설치해서 실행하면 상당한 성능 저하가 있기 때문이다. 특히 Qubes OS는 컴퓨터 요구사양이 높은 것까지 겹쳐서 성능 저하가 더욱 심하다. Tails OS가 예외적인 것이다.

Host OS 설치과정에서 디스크 암호화 옵션을 체크하는 것을 권장한다. 그리고 만약 Host OS를 USB에 설치해서 사용한다면 내장 SSD를 BitLocker나 VeraCrypt로 암호화한다. 리눅스(USB) 사용 중 악성코드에 감염되었을 때 윈도우(내장 SSD)도 같이 오염되는 것을 막기 위해서다.🔗#

단계의 기준은 진입장벽이다. 윈도우보다 리눅스를 다루는 것이 더 어렵다. 초보자에게 친화적인 리눅스 민트보다 데비안이 더 어렵다. KVM이 Virtualbox보다 다루기 어렵다. Live mode를 하기 위해서는 알아야 할 것이 생긴다. Kicksecure OS를 능숙하기 다루기 위해서는 연습이 필요하다. Qubes OS는 컴퓨터 사양 때문에 이전 단계에서는 없었던 금전적인 진입장벽이 있어서 최고 단계로 두었다.

2026년 2월 기준으로, Whonix와 Kicksecure 둘 다 한글 입력기로 IBus 대신 Fcitx를 사용하는 것을 권장한다.🔗#,🔗# Fcitx 한글 입력기는 터미널에 아래의 명령어를 입력하여 설치하면 된다.

```
sudo apt install fcitx fcitx-hangul
```

만약 Virtualbox를 사용한다면, 가상 디스크 이미지 모드를 설정할 때 먼저 가상 디스크를 분리한 다음에 Immutable 모드 또는 Normal 모드로 설정해야 한다.🔗#,🔗#,🔗#,🔗#

만약 KVM을 사용하고자 한다면, Virtualbox를 사용할 때보다 더 많은 시행착오를 겪어야 할 수도 있음을 감안해야 한다.🔗#

보안 측면에서는 Qubes OS가 Kicksecure OS보다 더 좋지만, 안티포렌식 측면에서는 Kicksecure OS가 Qubes OS보다 더 좋다. Qubes OS가 좋은 OS인 것은 맞지만 모든 방면에서 100% 완벽하지는 않다.🔗#,🔗#,🔗#,🔗#

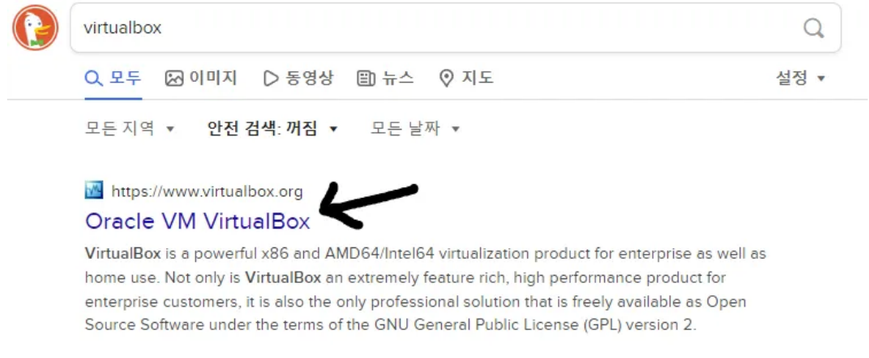
Qubes OS[8][9]에서는 사용자가 비희망 하는 것이 아니라면 기본적으로 installer에서 Whonix template VM과 sys-Whonix(Whonix-Gateway), anon-Whonix(Whonix-Workstation), Whonix Disposable VM를 설치하며 바로 실행 가능하다. 단, Qubes OS는 컴퓨터 사양이 높아야 하는 것으로 알고 있다.🔗권장사양

만약 시간이 흐르고 Qubes OS에 어느 정도 익숙해졌다면, 이제 하드웨어 또한 신경 써준다. 어떤 OS를 사용하더라도 하드웨어 상에서 Bios단과 인텔 관리 엔진에서의 개인정보 침해는 방어가 불가능하기 때문이다. 이는 Qubes OS를 쓰더라도 마찬가지이다. 화웨이폰을 쓰면서 완전한 프라이버시를 갖는 것은 불가능하다는 것을 생각해 보면 이해하기 쉽다. 다만 픽셀폰+GrapheneOS와 마찬가지로 이렇게까지 하는 사람은 매우 소수이며 대부분의 사람들은 이 정도 수준까지 필요하지는 않다.
자신이 직접 할 수도 있기는하지만 과정이 어렵고, 플래싱할 리눅스 노트북이 한대 더 필요한데 이러면 배보다 배꼽이 더커지는 꼴이 되며, 하판 전부 까서 롬 라이터물리고 플래싱하는 과정에서 실수해서 벽돌이 될 수도 있으므로 그냥 노트북을 새로 사는 것을 추천한다. 노트북을 구매할 때 🔗Qubes 인증 노트북과 🔗Qubes 포럼 추천 노트북을 참고한다. 이중에서 core boot항목이 yes인 노트북을 추려내면 🔗PrivacyBeast X230, 🔗NitroPad X230, 🔗NitroPad T430, 🔗Librem 14 총 4가지의 노트북이 있다. 이중 PrivacyBeast X230은 2023년 1월 기준 품절(Out of stock)이므로 NitroPad X230, NitroPad T430, Librem 14 3가지 중 하나를 선택할 수 있다.
NitroPad X230은 화면 12.5인치에 1.34kg이고 NitroPad T430은 화면 14인치에 2.16kg이다. NitroPad T430은 NitroPad X230과 비교해 더 큰 화면을 가진 대신 더 무겁다. Librem 14는 화면 14인치에 1.4kg이다.
Nitropad는 Technical Details의 Device condition과 Battery 항목을 보다시피 리퍼비시 상품이라는 것을 감안해야 한다. Librem 14는 USB 컨트롤러가 1개뿐이고 아직 Qubes 인증을 받지 못했다는 것을 감안해야 한다.
만약 Nitropad 노트북을 구매할 경우 다른 건 몰라도 키보드는 German QWERTZ에서 English QWERTY로 반드시 바꿔줘야 한다. CPU는 i7, RAM은 최대치인 16GB로 한다. HDD보다는 SSD가 좋고 SSD용량은 120GB로 충분하면 120GB를 선택하고 만약 모자라다고 느낀다면 더 큰 용량의 SSD를 선택한다. Librem 14 노트북을 구매할 경우 RAM은 32GB 이상으로 한다. OS는 PureOS에서 Qubes OS로 바꿔준다. 3개의 노트북 모두 전원 플러그 구매 옵션은 유럽, 미국, 영국 3가지가 있는데 어느 것을 선택해야 하는지는 모르겠다. 이외에도 간과한 요소가 있을 수 있으므로 구매할 때 반드시 꼼꼼히 살펴봐야 한다.

현실적으로 완벽한 보안과 프라이버시라는 것은 불가능하니 범죄를 저지를 생각은 추호도 하지 말자. 세상은 넓고 똑똑한 경찰은 많다.

비록 내용이 길지만 침착하게 하나하나 하면 의외로 쉽다. 내용이 길다고 겁먹지 않아도 된다.

1. Virtualbox 사이트에 접속



2. Virtualbox 다운로드

3. 표시해놓은 2개를 다운 받음

VirtualBox 6.1.32 platform packages

- Windows hosts
- OS X hosts
- Linux distributions
- Solaris hosts
- Solaris 11 IPS hosts

The binaries are released under the terms of the GPL version 2.

See the changelog for what has changed.

You might want to compare the checksums to verify the integrity of downloaded packages. *The SHA256 checksums should be favored as the MD5 algorithm must be treated as insecure!*

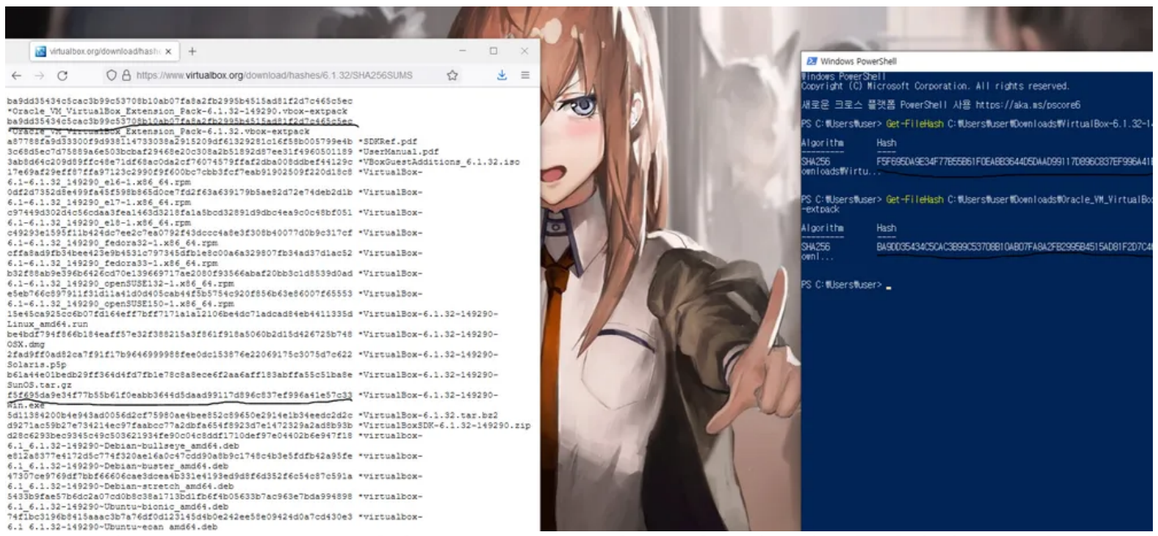
- SHA256 checksums, MD5 checksums

Note: After upgrading VirtualBox it is recommended to upgrade the guest additions as well.

VirtualBox 6.1.32 Oracle VM VirtualBox Extension Pack

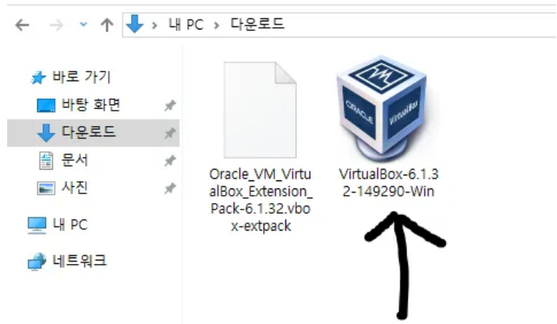
- All supported platforms

Support for USB 2.0 and USB 3.0 devices, VirtualBox RDP, disk encryption, NVMe and PXE boot for Intel cards. See this chapter from the User Manual for an introduction to this Extension Pack. The Extension Pack binaries are released under the VirtualBox Personal Use and Evaluation License (PUEL). *Please install the same version extension pack as your installed version of VirtualBox.*



참고로 이때 Windows Powershell 창을 열고 Get-FileHash '파일명'(파일 드래그 앤 드롭) 을 실행하여 나온 파일의 해시값과 https://www.virtualbox.org/download/hashes/6.1.32/SHA256SUMS의 값을 비교하여 파일의 무결성을 확인할 수 있다.

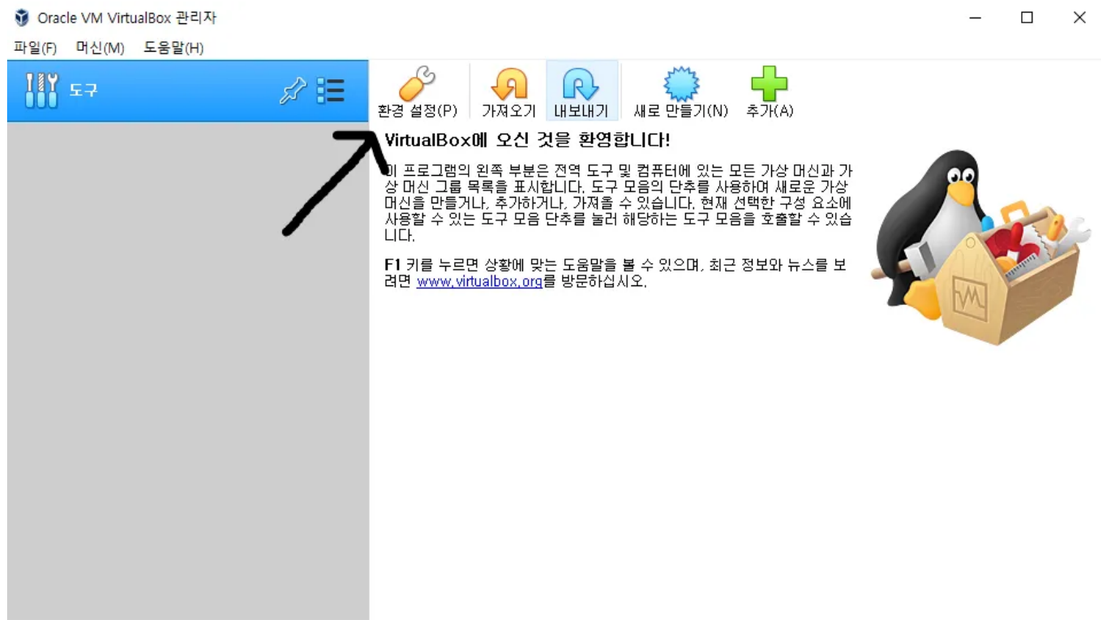
4. Virtualbox 열기



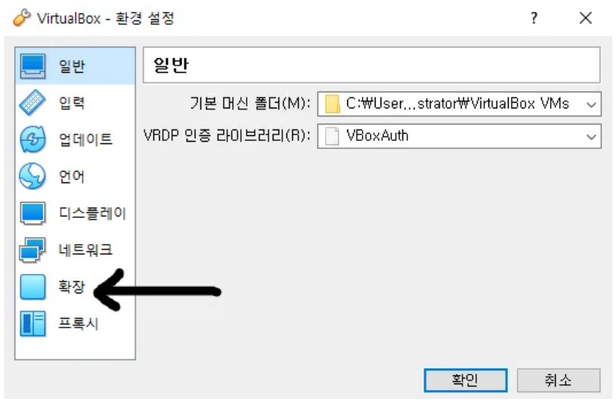
5. 건드릴 필요 없이 Next만 쭉 누르면 됨. 중간에 밑 사진 뜨면 Yes 누르면 됨.

Oracle VM VirtualBox 6.1.32
Warning:
Network Interfaces
Installing the Oracle VM VirtualBox 6.1.32 Networking feature will reset your network connection and temporarily disconnect you from the network.
Proceed with installation now?
Version 6.1.32
Yes
No

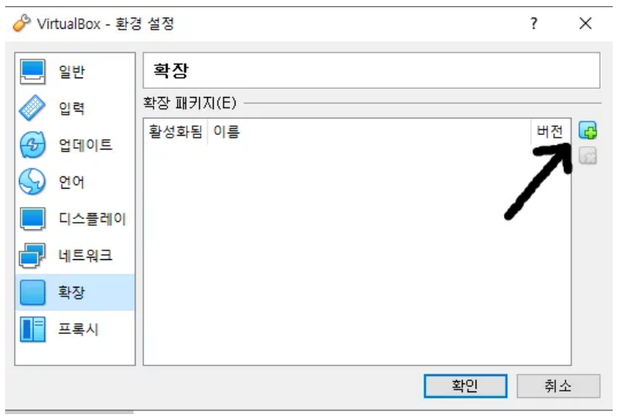
6. 설치가 완료되면 들어가서 환경설정 클릭



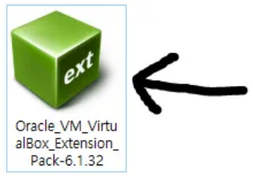
7. 확장 클릭



8. 표시한 아이콘 클릭

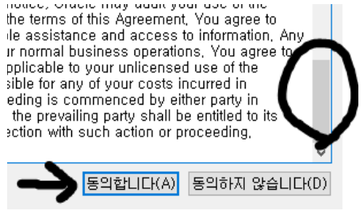


9. 표시한 파일 선택

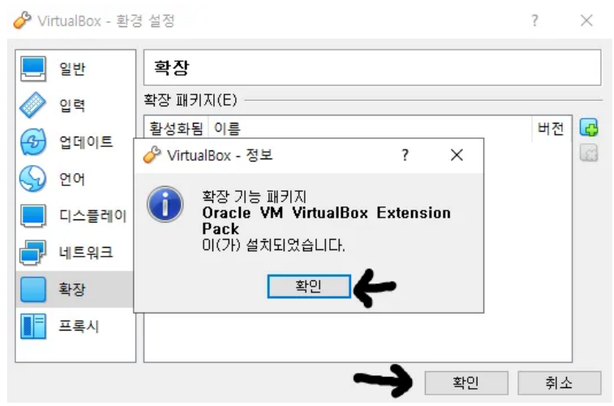


10. 설치

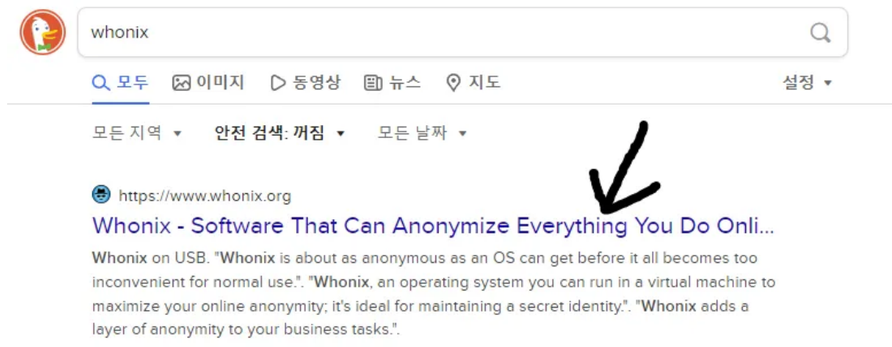
11. 스크롤 맨 밑으로 내리고 동의합니다 클릭



12. 확인

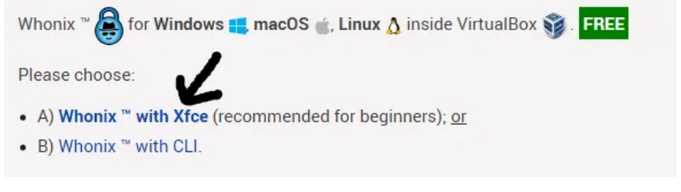


13. Whonix 사이트(https://www.whonix.org/wiki/Download) 혹은 비공식 한국 Whonix 이미지 다운로드 서버[10]에 접속



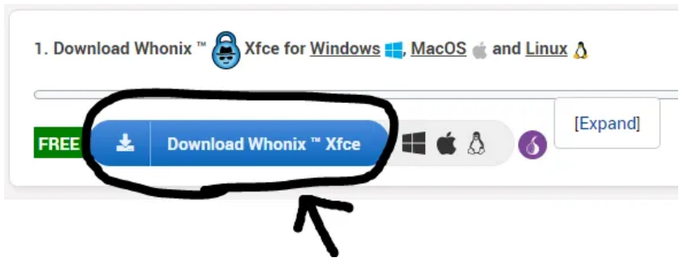
14. Windows 선택

15. Xfce 선택



16. 다운로드

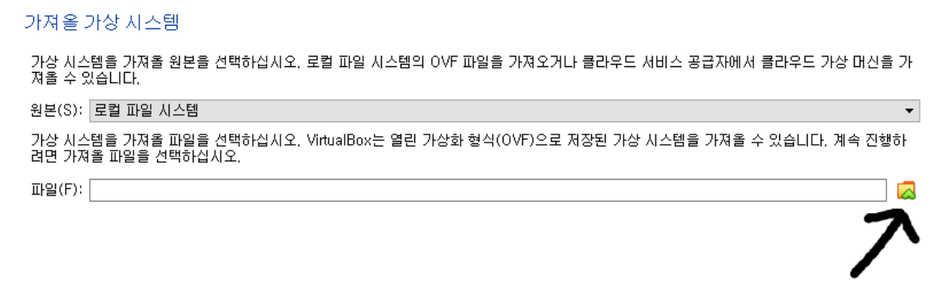
이때에도 파일 해시값 대조와 함께 가능하다면 gpg 키 검증까지 해서 파일이 변조되지 않았음을 확인한다.



17. Virtualbox에서 가져오기 클릭

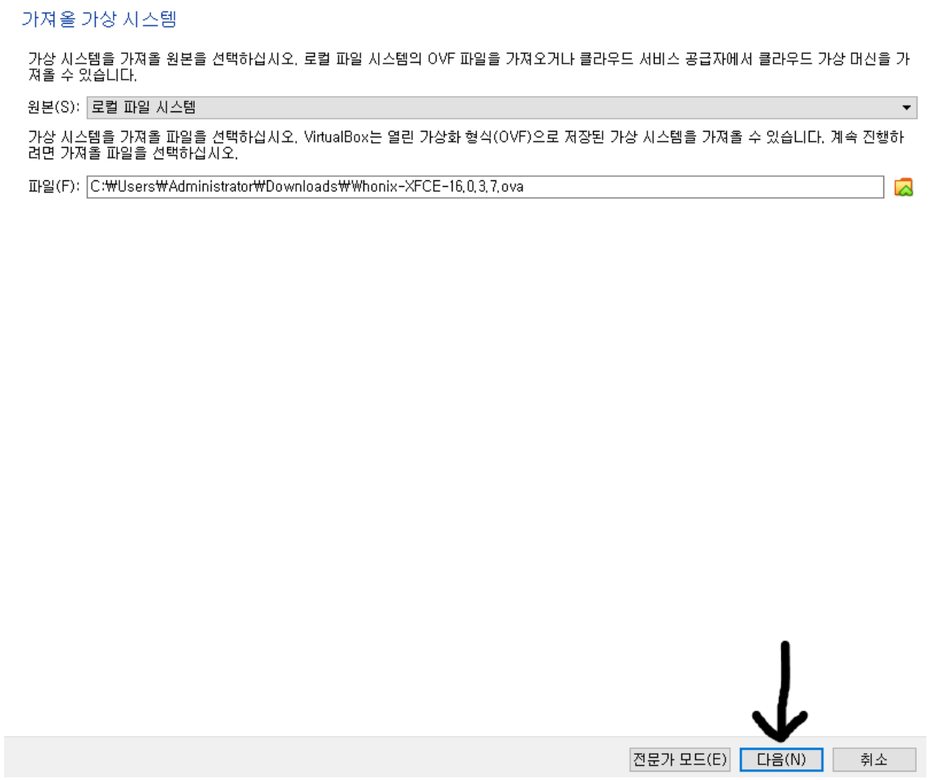
Oracle VM VirtualBox 관리자
파일(F) 머신(M) 도움말(H)
도구
환경 설정(P)
가져오기
내보내기
새로 만들기(N)
추가(A)
VirtualBox에 오신 것을 환영합니다!
이 프로그램의 왼쪽 부분은 전역 도구 및 컴퓨터에 있는 모든 가상 머신과 가상 머신 그룹 목록을 표시합니다. 도구 모음의 단추를 사용하여 새로운 가상 머신을 만들거나, 추가하거나, 가져올 수 있습니다. 현재 선택한 구성 요소에 사용할 수 있는 도구 모음 단추를 눌러 해당하는 도구 모음을 호출할 수 있습니다.
F1 키를 누르면 상황에 맞는 도움말을 볼 수 있으며, 최근 정보와 뉴스를 보려면 www.virtualbox.org를 방문하십시오.

18. 표시한 아이콘 클릭

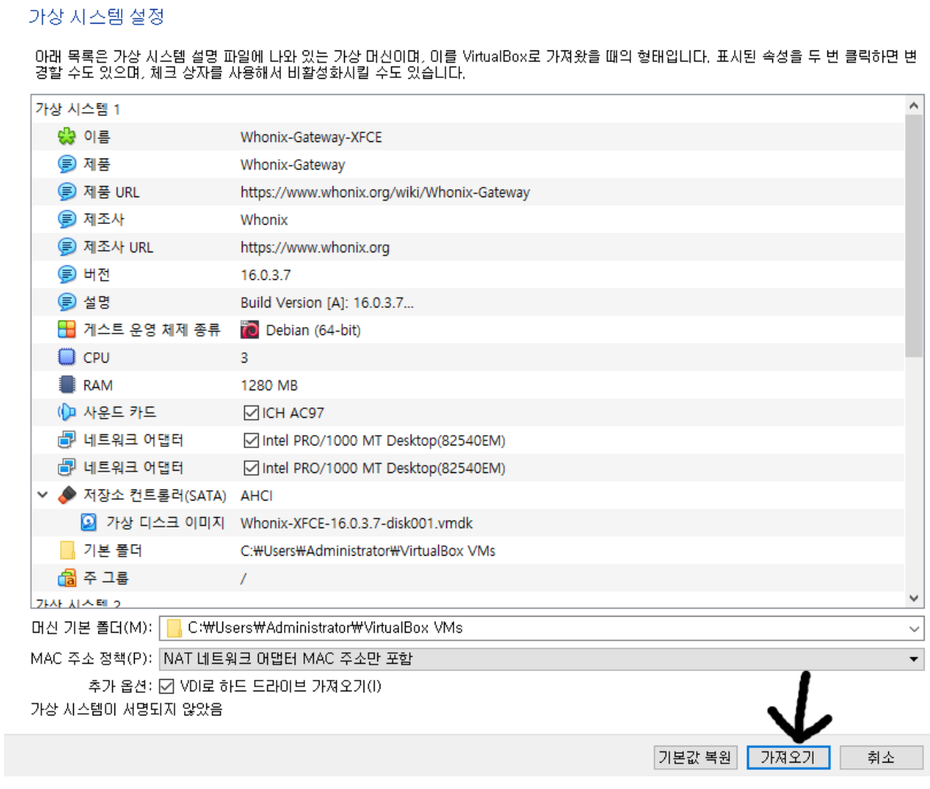

가져올 가상 시스템
가상 시스템을 가져올 원본을 선택하십시오. 로컬 파일 시스템의 OVF 파일을 가져오거나 클라우드 서비스 공급자에서 클라우드 가상 머신을 가져올 수 있습니다.
원본(S): 로컬 파일 시스템
가상 시스템을 가져올 파일을 선택하십시오. VirtualBox는 열린 가상화 형식(OVF)으로 저장된 가상 시스템을 가져올 수 있습니다. 계속 진행하려면 가져올 파일을 선택하십시오.
파일(F):

19. 파일 선택

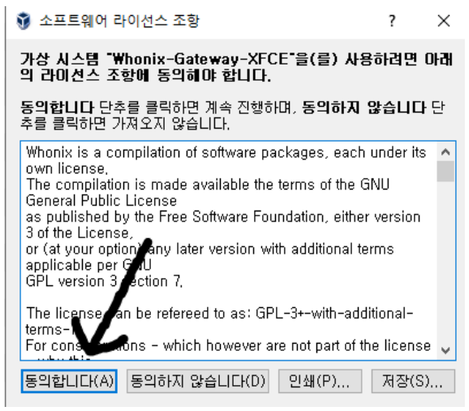
20. 다음 클릭


가져올 가상 시스템
가상 시스템을 가져올 원본을 선택하십시오. 로컬 파일 시스템의 OVF 파일을 가져오거나 클라우드 서비스 공급자에서 클라우드 가상 머신을 가져올 수 있습니다.
원본(S): 로컬 파일 시스템
가상 시스템을 가져올 파일을 선택하십시오. VirtualBox는 열린 가상화 형식(OVF)으로 저장된 가상 시스템을 가져올 수 있습니다. 계속 진행하려면 가져올 파일을 선택하십시오.
파일(F): C:₩Users₩Administrator₩Downloads₩Whonix-XFCE-16.0.3.7.ova
전문가 모드(E)
다음(N)
취소

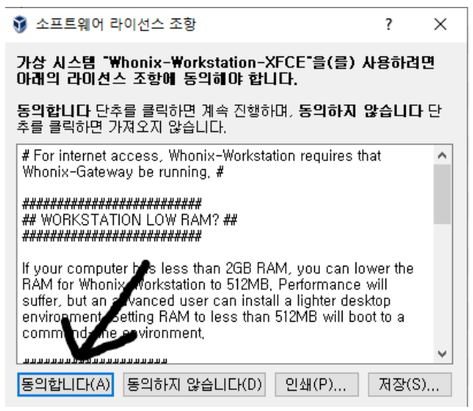
21. 가져오기 클릭



22. 동의합니다 클릭

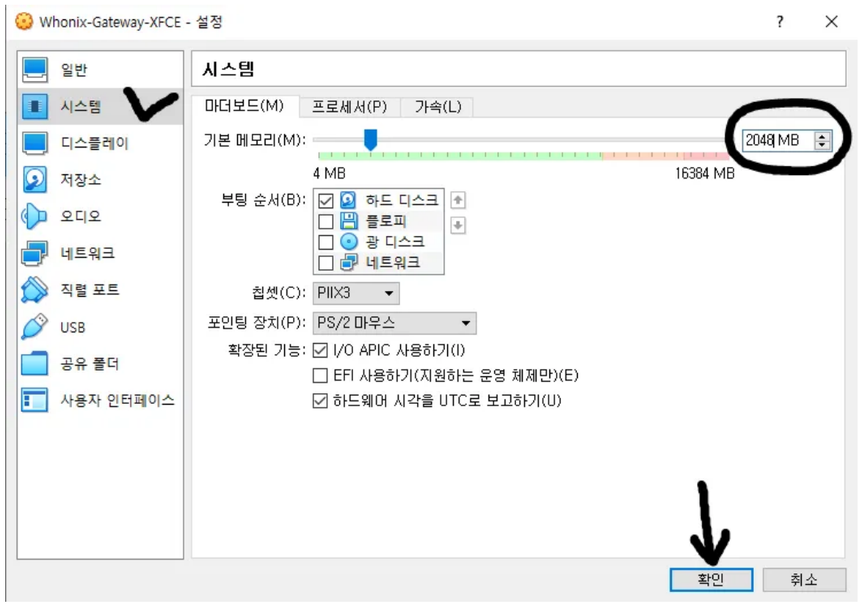


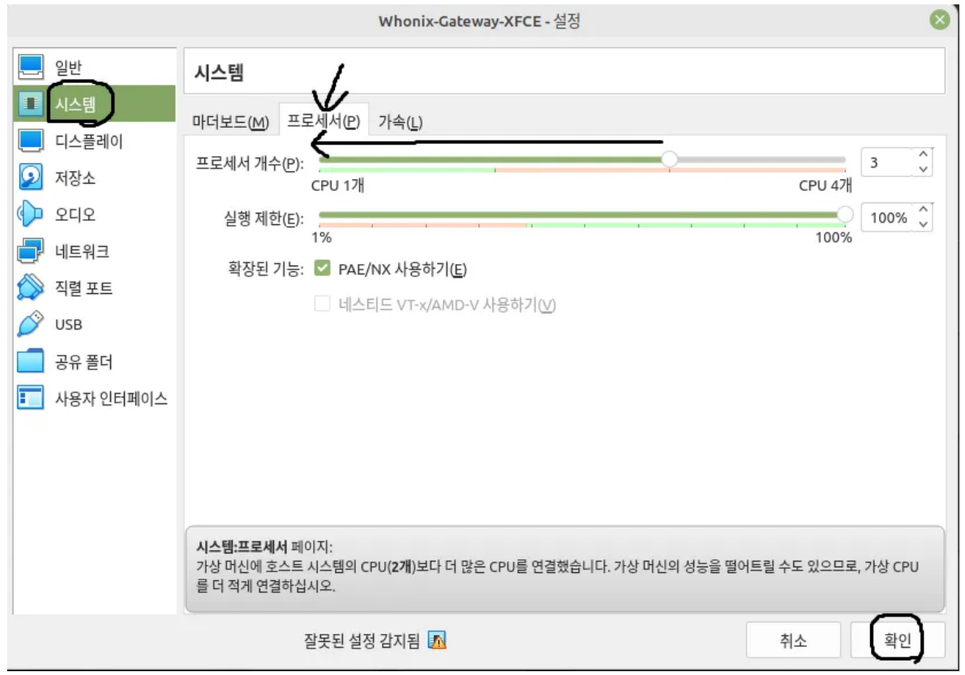
23. 동의합니다 한번 더 클릭

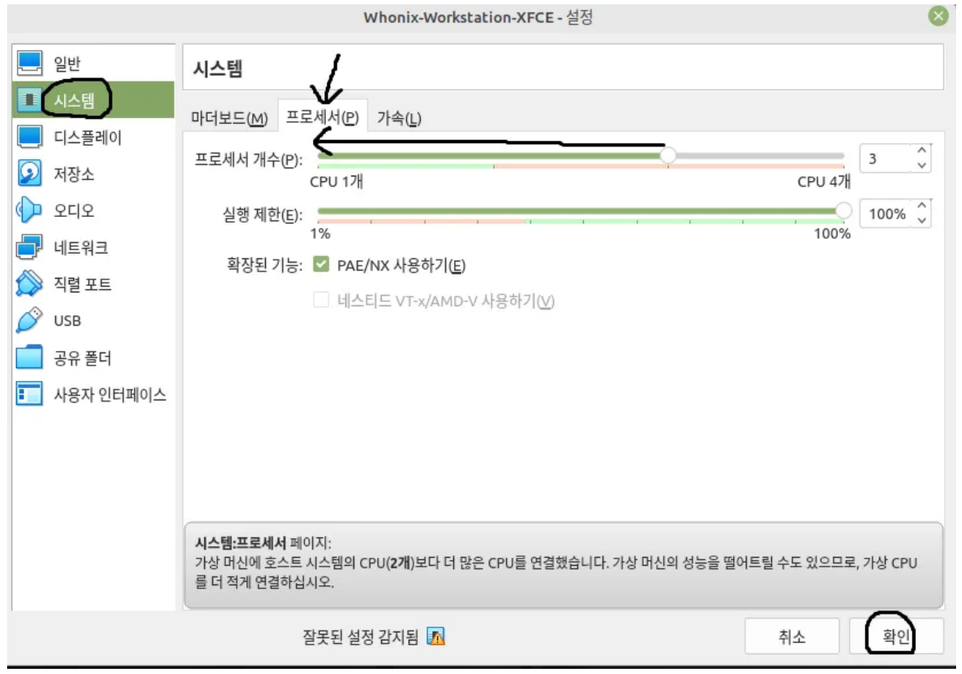


24. Gateway 한번 클릭하고 설정 클릭

25. 시스템에서 기본 메모리 2048MB로 변경 후 확인. 만약 '잘못된 설정 감지됨'이 뜬다면 그에 맞게 조치한다. 예를 들어 가상 CPU를 더 적게 연결하라는 말이 뜬다면 프로세서 개수를 1개로 줄이고 확인을 누른다. Workstation 설정 -> 시스템에서 '잘못된 설정 감지됨'이 뜨는지 확인하고 뜬다면 그에 맞게 조치한다. Gateway에서 '잘못된 설정 감지됨'이 떴다면 Workstation에서도 뜰 가능성이 상당히 높기 때문이다.







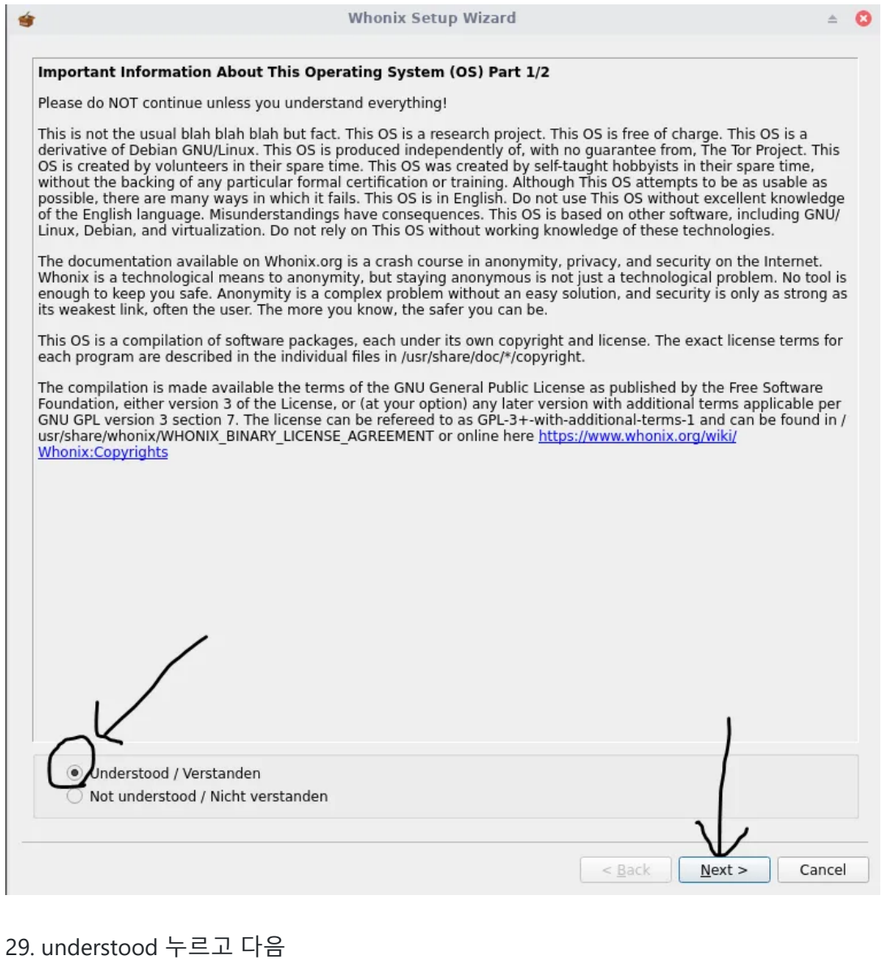
26. Gateway 한번 클릭하고 시작 클릭

27. 여기서 만약 아래의 오류가 뜬다면 아래 유튜브 링크에 들어가서 해결 방법 보면 됨

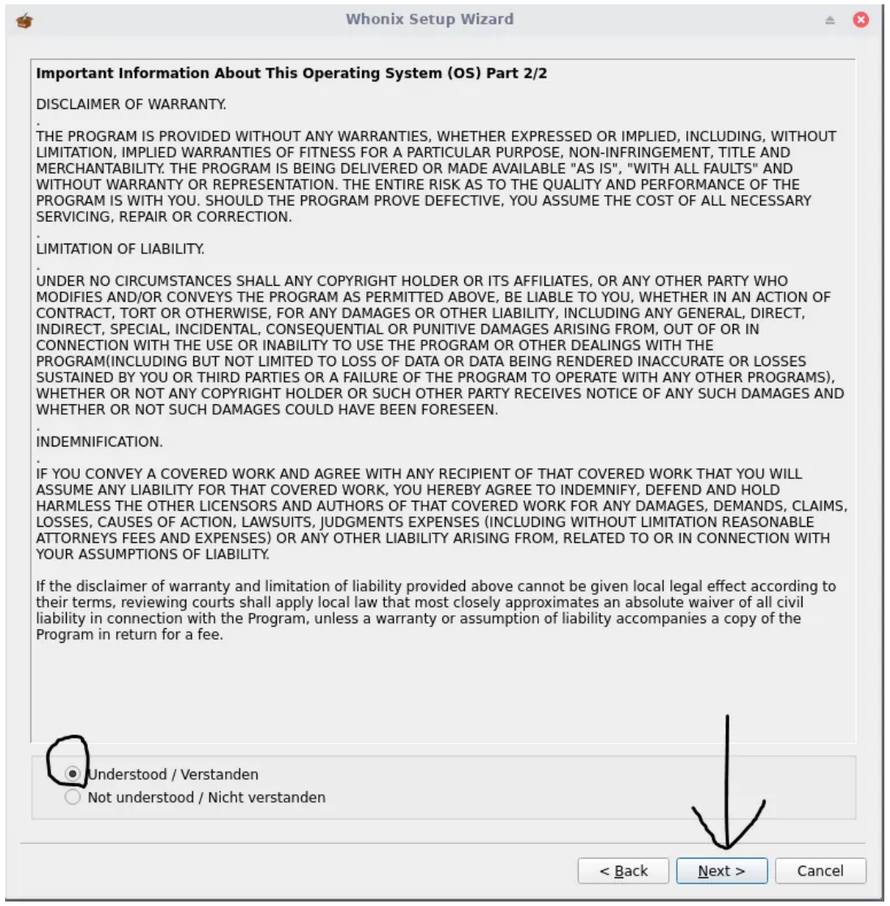
https://www.youtube.com/watch?v=qKRhJhYejH8

VirtualBox - 오류
가상 머신 Whonix-Gateway-XFCE의 세션을 열 수 없습니다.
자세한 정보(D)
Not in a hypervisor partition (HVP=0) (VERR_NEM_NOT_AVAILABLE).
VT-x is disabled in the BIOS for all CPU modes (VERR_VMX_MSR_ALL_VMX_DISABLED).
결과 코드: E_FAIL (0x80004005)
구성 요소: ConsoleWrap
인터페이스: IConsole {872da645-4a9b-1727-bee2-5585105b9eed}
확인
복사

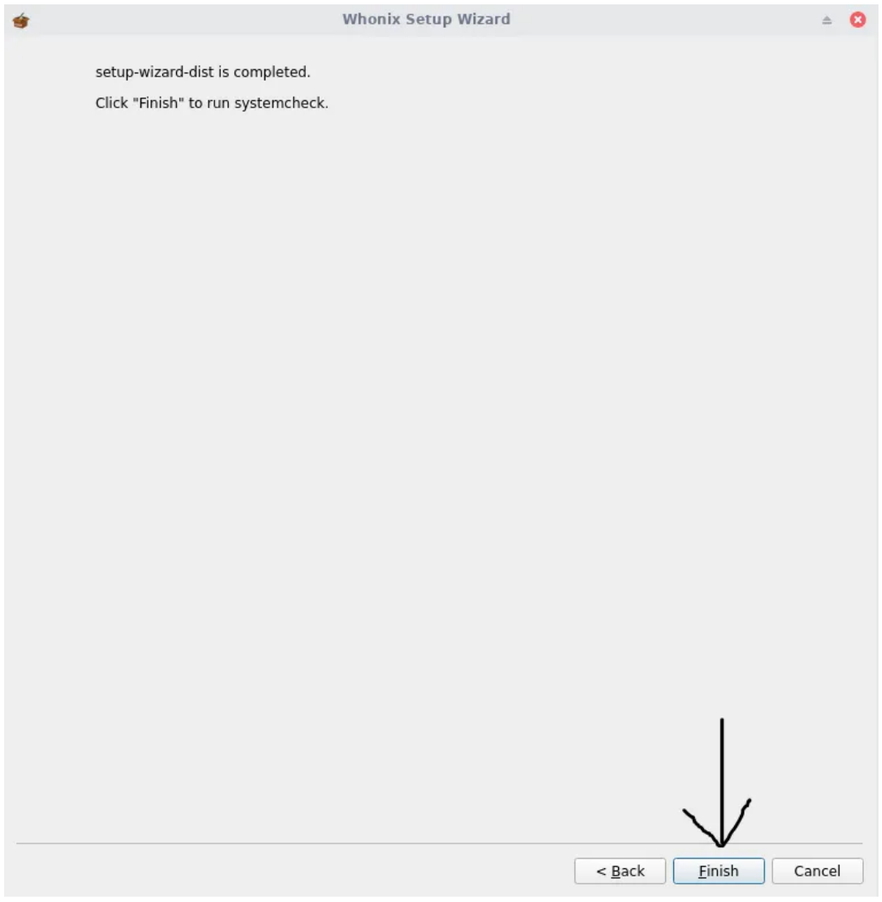
28. understood 누르고 다음


Whonix Setup Wizard
Important Information About This Operating System (OS) Part 1/2
Please do NOT continue unless you understand everything!
This is not the usual blah blah blah but fact. This OS is a research project. This OS is free of charge. This OS is a derivative of Debian GNU/Linux. This OS is produced independently of, with no guarantee from, The Tor Project. This OS is created by volunteers in their spare time. This OS was created by self-taught hobbyists in their spare time, without the backing of any particular formal certification or training. Although This OS attempts to be as usable as possible, there are many ways in which it fails. This OS is in English. Do not use This OS without excellent knowledge of the English language. Misunderstandings have consequences. This OS is based on other software, including GNU/Linux, Debian, and virtualization. Do not rely on This OS without working knowledge of these technologies.
The documentation available on Whonix.org is a crash course in anonymity, privacy, and security on the Internet. Whonix is a technological means to anonymity, but staying anonymous is not just a technological problem. No tool is enough to keep you safe. Anonymity is a complex problem without an easy solution, and security is only as strong as its weakest link, often the user. The more you know, the safer you can be.
This OS is a compilation of software packages, each under its own copyright and license. The exact license terms for each program are described in the individual files in /usr/share/doc/*/copyright.
The compilation is made available the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version with additional terms applicable per GNU GPL version 3 section 7. The license can be refereed to as GPL-3+-with-additional-terms-1 and can be found in / usr/share/whonix/WHONIX_BINARY_LICENSE_AGREEMENT or online here https://www.whonix.org/wiki/Whonix:Copyrights
Understood / Verstanden
Not understood / Nicht verstanden
< Back
Next >
Cancel

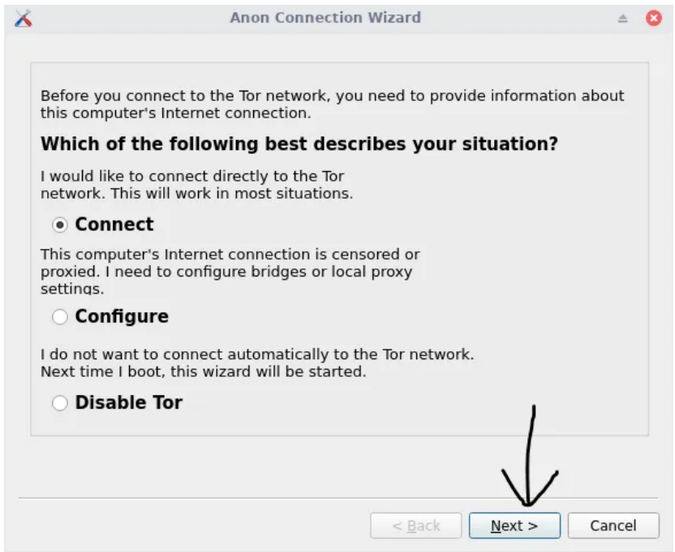
29. understood 누르고 다음


Whonix Setup Wizard
Important Information About This Operating System (OS) Part 2/2
DISCLAIMER OF WARRANTY.
.
THE PROGRAM IS PROVIDED WITHOUT ANY WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, TITLE AND MERCHANTABILITY. THE PROGRAM IS BEING DELIVERED OR MADE AVAILABLE "AS IS", "WITH ALL FAULTS" AND WITHOUT WARRANTY OR REPRESENTATION. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
.
LIMITATION OF LIABILITY.
.
UNDER NO CIRCUMSTANCES SHALL ANY COPYRIGHT HOLDER OR ITS AFFILIATES, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, FOR ANY DAMAGES OR OTHER LIABILITY, INCLUDING ANY GENERAL, DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES ARISING FROM, OUT OF OR IN CONNECTION WITH THE USE OR INABILITY TO USE THE PROGRAM OR OTHER DEALINGS WITH THE PROGRAM(INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), WHETHER OR NOT ANY COPYRIGHT HOLDER OR SUCH OTHER PARTY RECEIVES NOTICE OF ANY SUCH DAMAGES AND WHETHER OR NOT SUCH DAMAGES COULD HAVE BEEN FORESEEN.
.
INDEMNIFICATION.
.
IF YOU CONVEY A COVERED WORK AND AGREE WITH ANY RECIPIENT OF THAT COVERED WORK THAT YOU WILL ASSUME ANY LIABILITY FOR THAT COVERED WORK, YOU HEREBY AGREE TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE OTHER LICENSORS AND AUTHORS OF THAT COVERED WORK FOR ANY DAMAGES, DEMANDS, CLAIMS, LOSSES, CAUSES OF ACTION, LAWSUITS, JUDGMENTS EXPENSES (INCLUDING WITHOUT LIMITATION REASONABLE ATTORNEYS FEES AND EXPENSES) OR ANY OTHER LIABILITY ARISING FROM, RELATED TO OR IN CONNECTION WITH YOUR ASSUMPTIONS OF LIABILITY.
If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.
Understood / Verstanden
Not understood / Nicht verstanden
< Back
Next >
Cancel

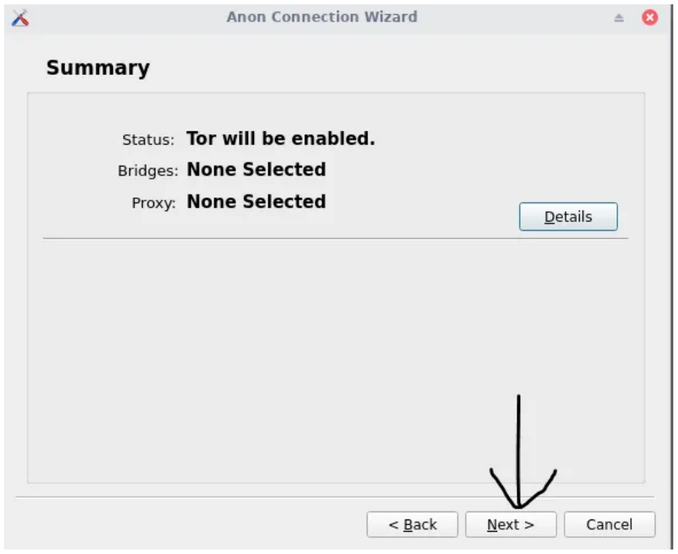
30. Finish 클릭



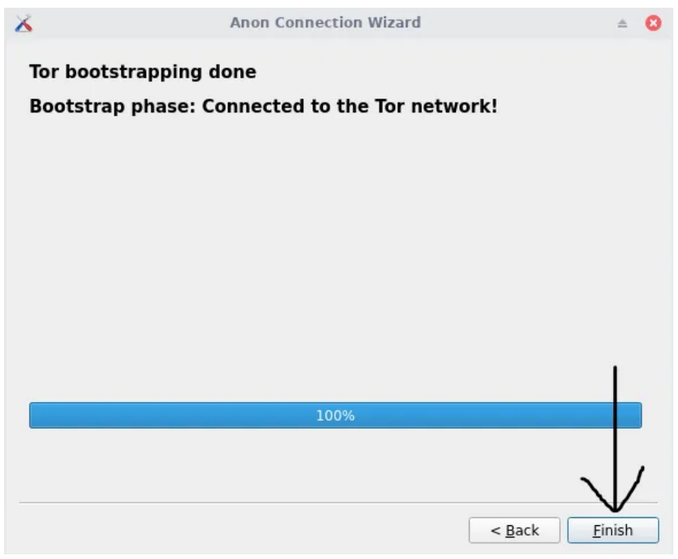
31. Next 클릭


Anon Connection Wizard
Before you connect to the Tor network, you need to provide information about this computer's Internet connection.
Which of the following best describes your situation?
I would like to connect directly to the Tor network. This will work in most situations.
Connect
This computer's Internet connection is censored or proxied. I need to configure bridges or local proxy settings.
Configure
I do not want to connect automatically to the Tor network. Next time I boot, this wizard will be started.
Disable Tor
< Back
Next >
Cancel

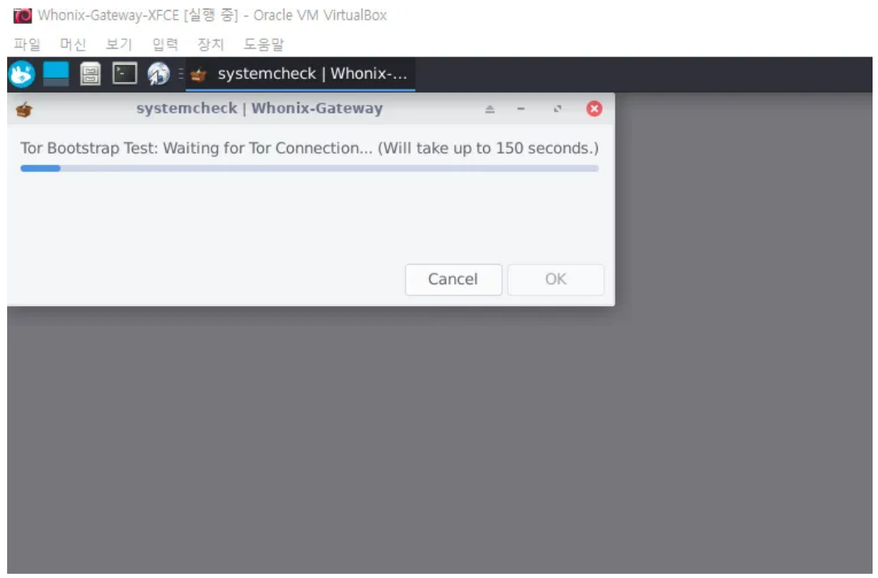
32. Next



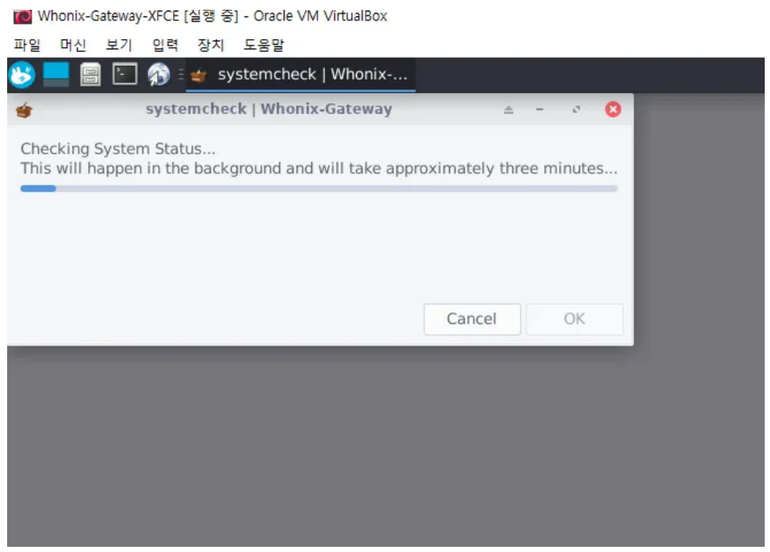
33. Finish



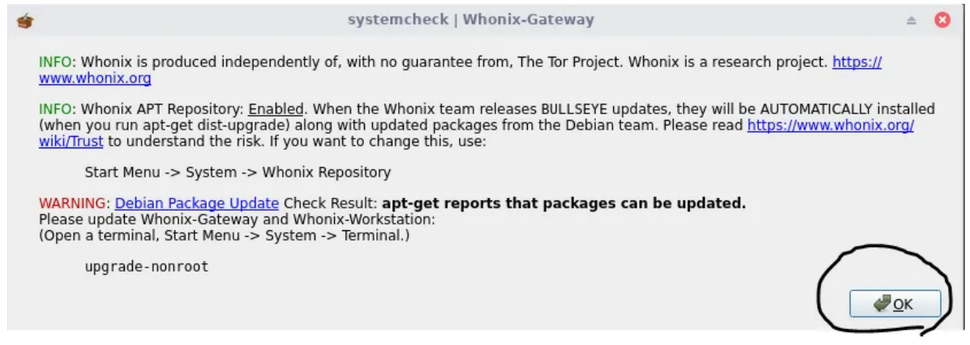
34. 기다리기



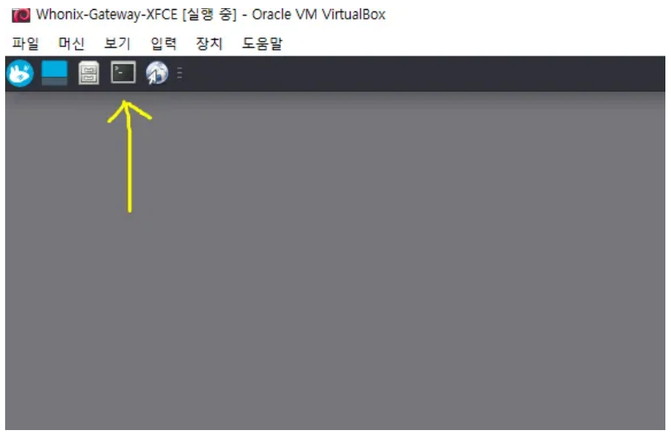
35. 기다리기



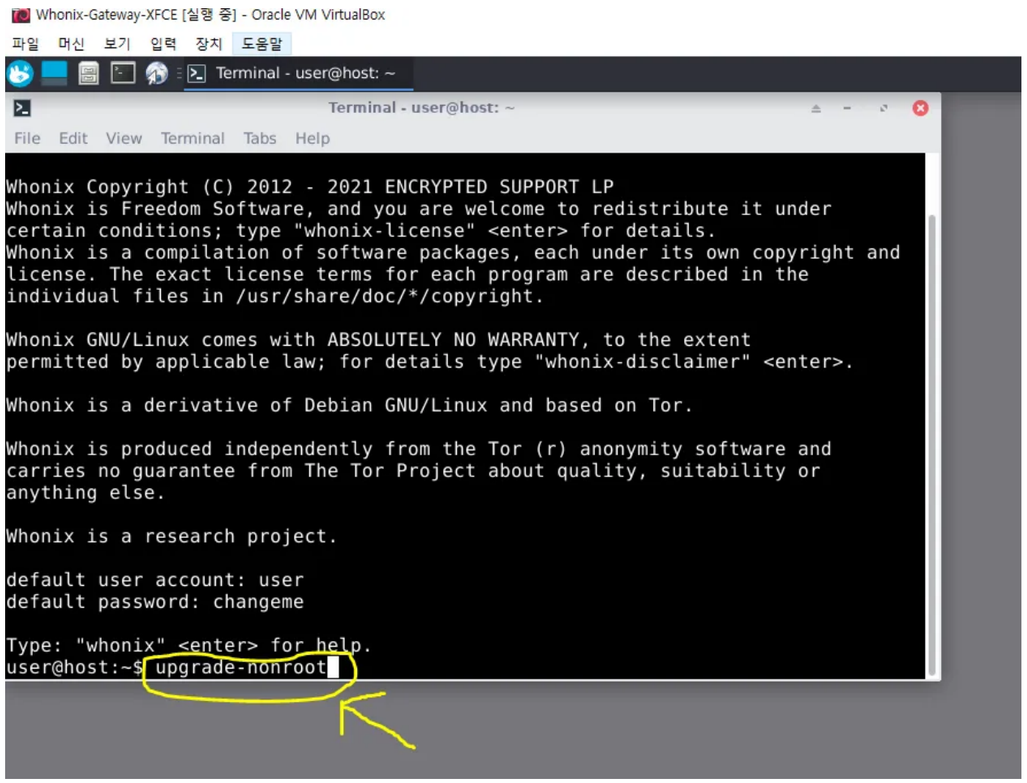
36. OK



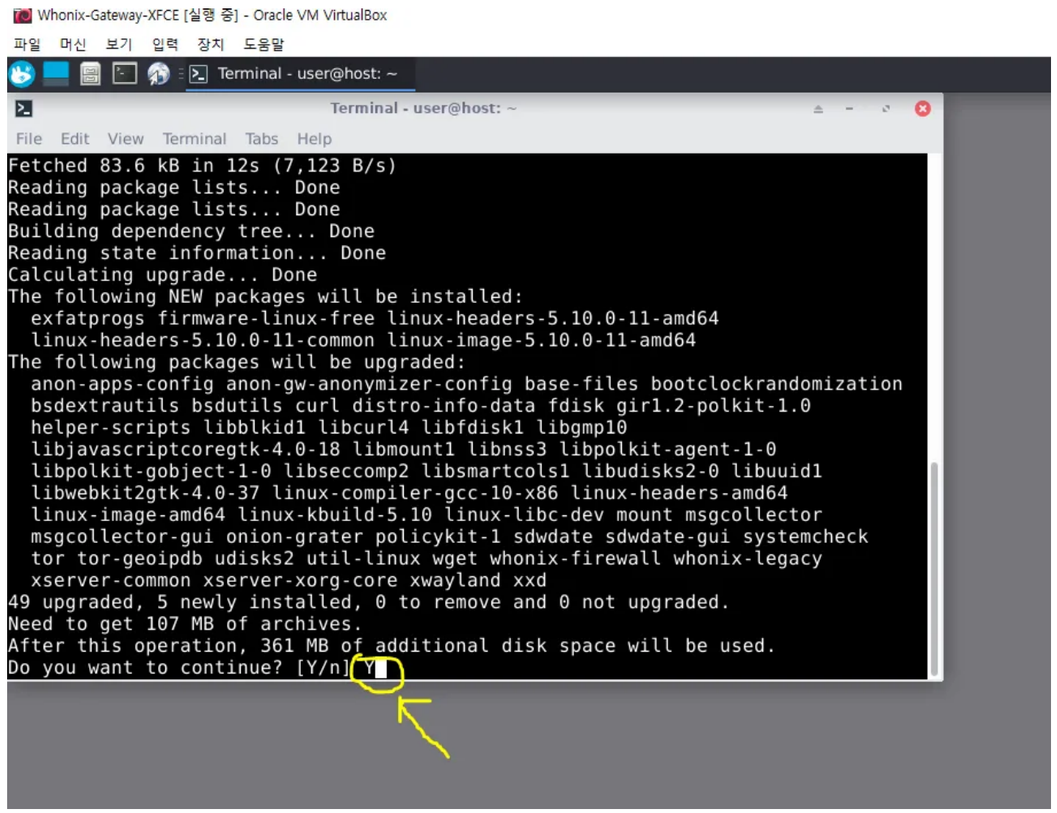
37. 표시한 아이콘 클릭



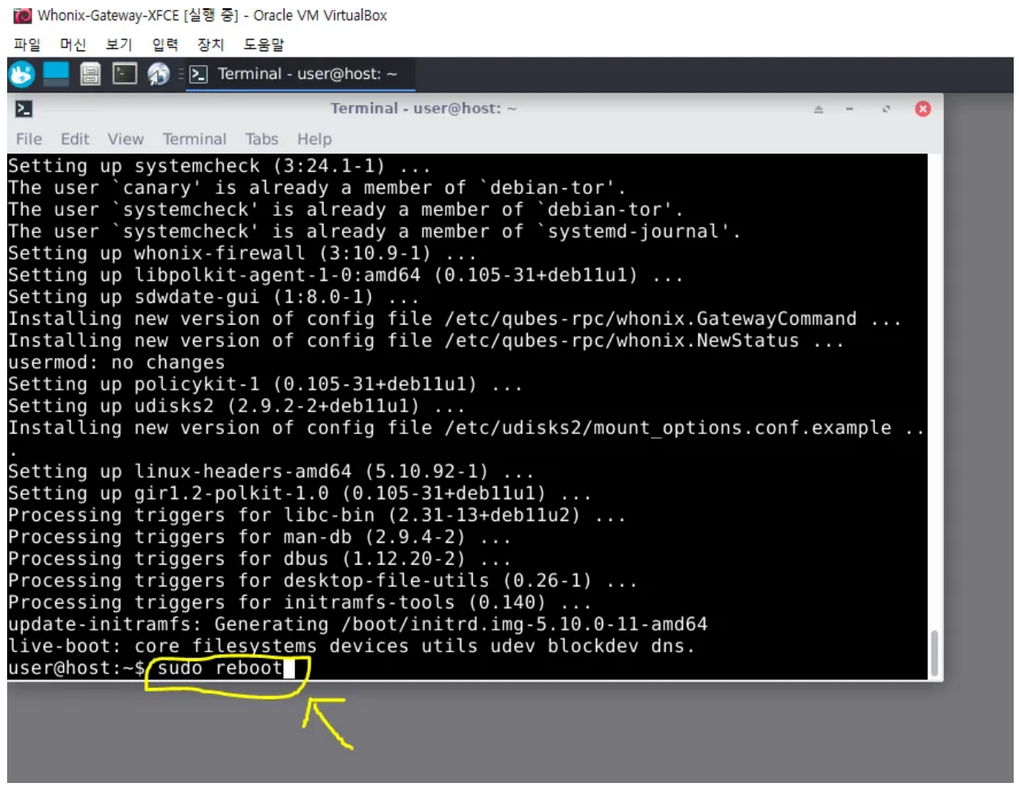
38. upgrade-nonroot 입력하고 엔터


Whonix-Gateway-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
Whonix Copyright (C) 2012 - 2021 ENCRYPTED SUPPORT LP
Whonix is Freedom Software, and you are welcome to redistribute it under
certain conditions; type "whonix-license" <enter> for details.
Whonix is a compilation of software packages, each under its own copyright and
license. The exact license terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Whonix GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law; for details type "whonix-disclaimer" <enter>.
Whonix is a derivative of Debian GNU/Linux and based on Tor.
Whonix is produced independently from the Tor (r) anonymity software and
carries no guarantee from The Tor Project about quality, suitability or
anything else.
Whonix is a research project.
default user account: user
default password: changeme
Type: "whonix" <enter> for help.
user@host:~$ upgrade-nonroot

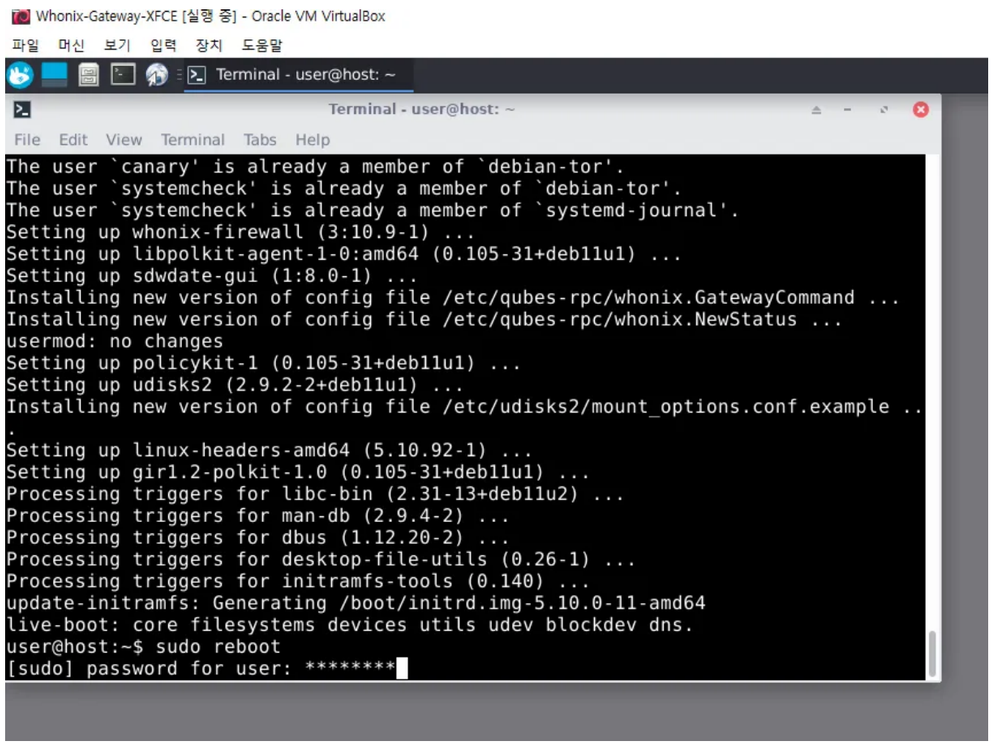
39. Y 입력하고 엔터


Whonix-Gateway-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
Fetched 83.6 kB in 12s (7,123 B/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following NEW packages will be installed:
exfatprogs firmware-linux-free linux-headers-5.10.0-11-amd64
linux-headers-5.10.0-11-common linux-image-5.10.0-11-amd64
The following packages will be upgraded:
anon-apps-config anon-gw-anonymizer-config base-files bootclockrandomization
bsdextrautils bsdutils curl distro-info-data fdisk gir1.2-polkit-1.0
helper-scripts libblkid1 libcurl4 libfdisk1 libgmp10
libjavascriptcoregtk-4.0-18 libmount1 libnss3 libpolkit-agent-1-0
libpolkit-gobject-1-0 libseccomp2 libsmartcols1 libudisks2-0 libuuid1
libwebkit2gtk-4.0-37 linux-compiler-gcc-10-x86 linux-headers-amd64
linux-image-amd64 linux-kbuild-5.10 linux-libc-dev mount msgcollector
msgcollector-gui onion-grater policykit-1 sdwdate sdwdate-gui systemcheck
tor tor-geoipdb udisks2 util-linux wget whonix-firewall whonix-legacy
xserver-common xserver-xorg-core xwayland xxd
49 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
Need to get 107 MB of archives.
After this operation, 361 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y

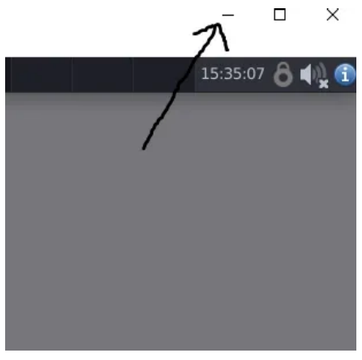
40. sudo reboot 입력하고 엔터


Whonix-Gateway-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
Setting up systemcheck (3:24.1-1) ...
The user `canary' is already a member of `debian-tor'.
The user `systemcheck' is already a member of `debian-tor'.
The user `systemcheck' is already a member of `systemd-journal'.
Setting up whonix-firewall (3:10.9-1) ...
Setting up libpolkit-agent-1-0:amd64 (0.105-31+deb11u1) ...
Setting up sdwdate-gui (1:8.0-1) ...
Installing new version of config file /etc/qubes-rpc/whonix.GatewayCommand ...
Installing new version of config file /etc/qubes-rpc/whonix.NewStatus ...
usermod: no changes
Setting up policykit-1 (0.105-31+deb11u1) ...
Setting up udisks2 (2.9.2-2+deb11u1) ...
Installing new version of config file /etc/udisks2/mount_options.conf.example ..
.
Setting up linux-headers-amd64 (5.10.92-1) ...
Setting up gir1.2-polkit-1.0 (0.105-31+deb11u1) ...
Processing triggers for libc-bin (2.31-13+deb11u2) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for dbus (1.12.20-2) ...
Processing triggers for desktop-file-utils (0.26-1) ...
Processing triggers for initramfs-tools (0.140) ...
update-initramfs: Generating /boot/initrd.img-5.10.0-11-amd64
live-boot: core filesystems devices utils udev blockdev dns.
user@host:~$ sudo reboot

41. changeme 입력하고 엔터

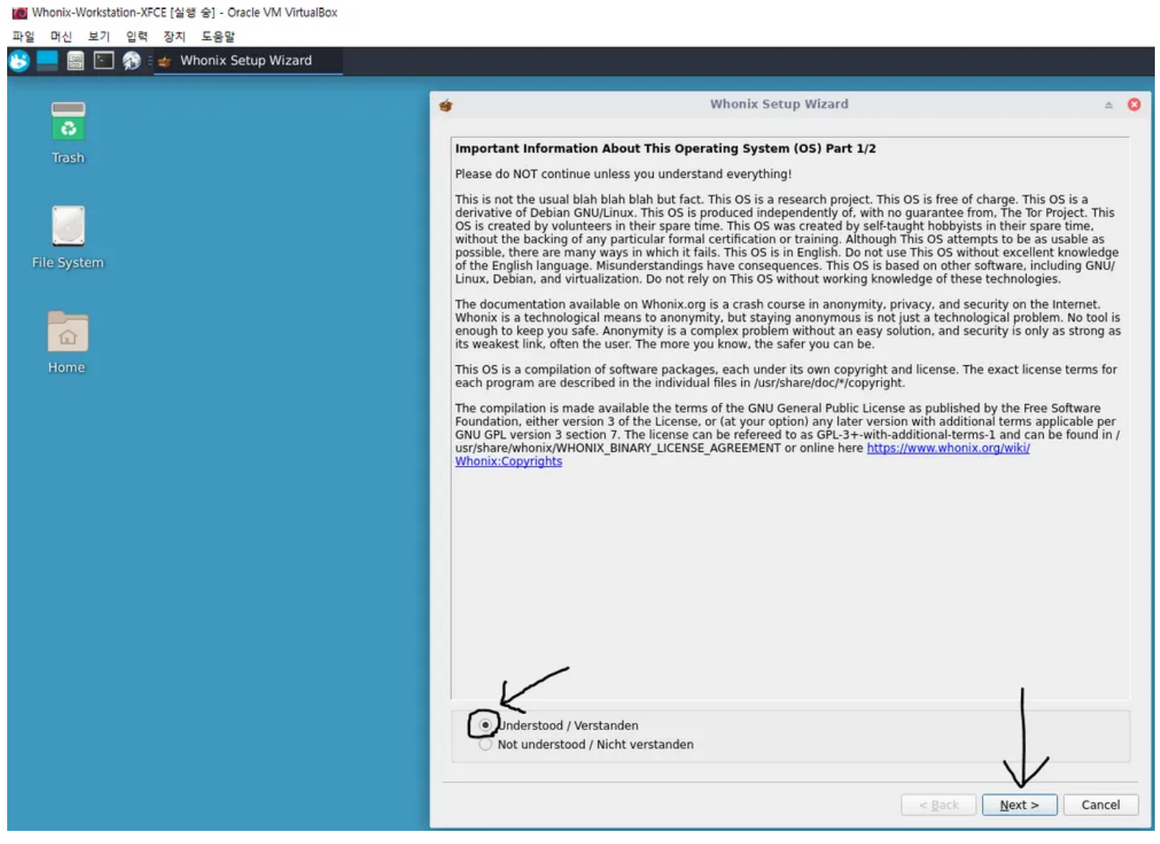

Whonix-Gateway-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
The user `canary' is already a member of `debian-tor'.
The user `systemcheck' is already a member of `debian-tor'.
The user `systemcheck' is already a member of `systemd-journal'.
Setting up whonix-firewall (3:10.9-1) ...
Setting up libpolkit-agent-1-0:amd64 (0.105-31+deb11u1) ...
Setting up sdwdate-gui (1:8.0-1) ...
Installing new version of config file /etc/qubes-rpc/whonix.GatewayCommand ...
Installing new version of config file /etc/qubes-rpc/whonix.NewStatus ...
usermod: no changes
Setting up policykit-1 (0.105-31+deb11u1) ...
Setting up udisks2 (2.9.2-2+deb11u1) ...
Installing new version of config file /etc/udisks2/mount_options.conf.example ..
.
Setting up linux-headers-amd64 (5.10.92-1) ...
Setting up gir1.2-polkit-1.0 (0.105-31+deb11u1) ...
Processing triggers for libc-bin (2.31-13+deb11u2) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for dbus (1.12.20-2) ...
Processing triggers for desktop-file-utils (0.26-1) ...
Processing triggers for initramfs-tools (0.140) ...
update-initramfs: Generating /boot/initrd.img-5.10.0-11-amd64
live-boot: core filesystems devices utils udev blockdev dns.
user@host:~$ sudo reboot
[sudo] password for user: ********

42. 창 내려놓기



43. Workstation 클릭하고 시작 클릭

44. understood 누르고 다음


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Whonix Setup Wizard
Trash
File System
Home
Whonix Setup Wizard
Important Information About This Operating System (OS) Part 1/2
Please do NOT continue unless you understand everything!
This is not the usual blah blah blah but fact. This OS is a research project. This OS is free of charge. This OS is a derivative of Debian GNU/Linux. This OS is produced independently of, with no guarantee from, The Tor Project. This OS is created by volunteers in their spare time. This OS was created by self-taught hobbyists in their spare time, without the backing of any particular formal certification or training. Although This OS attempts to be as usable as possible, there are many ways in which it fails. This OS is in English. Do not use This OS without excellent knowledge of the English language. Misunderstandings have consequences. This OS is based on other software, including GNU/Linux, Debian, and virtualization. Do not rely on This OS without working knowledge of these technologies.
The documentation available on Whonix.org is a crash course in anonymity, privacy, and security on the Internet. Whonix is a technological means to anonymity, but staying anonymous is not just a technological problem. No tool is enough to keep you safe. Anonymity is a complex problem without an easy solution, and security is only as strong as its weakest link, often the user. The more you know, the safer you can be.
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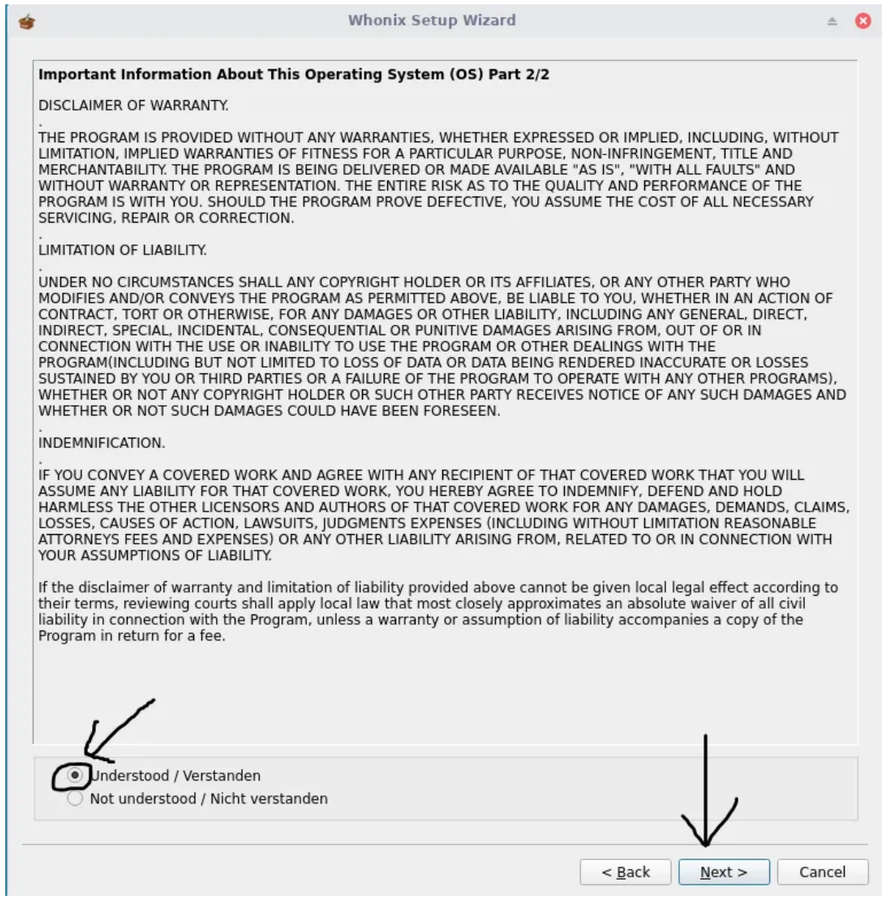
Understood / Verstanden
Not understood / Nicht verstanden
< Back
Next >
Cancel

45. understood 누르고 다음


Whonix Setup Wizard
Important Information About This Operating System (OS) Part 2/2
DISCLAIMER OF WARRANTY.
.
THE PROGRAM IS PROVIDED WITHOUT ANY WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, TITLE AND MERCHANTABILITY. THE PROGRAM IS BEING DELIVERED OR MADE AVAILABLE "AS IS", "WITH ALL FAULTS" AND WITHOUT WARRANTY OR REPRESENTATION. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
.
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.
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.
INDEMNIFICATION.
.
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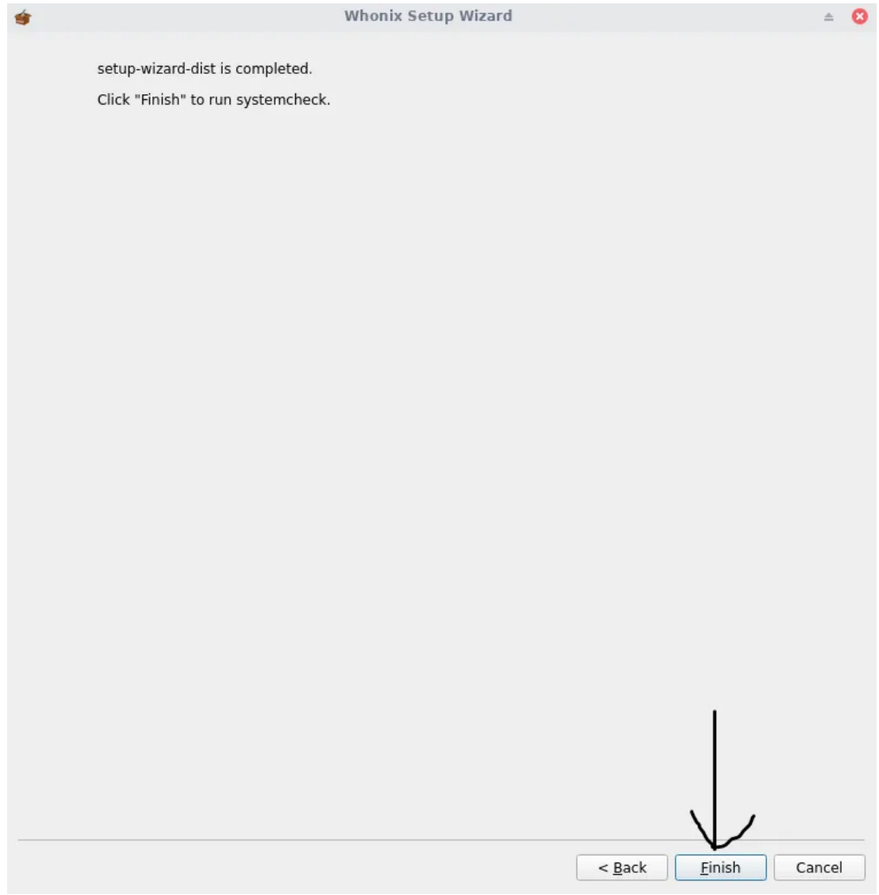
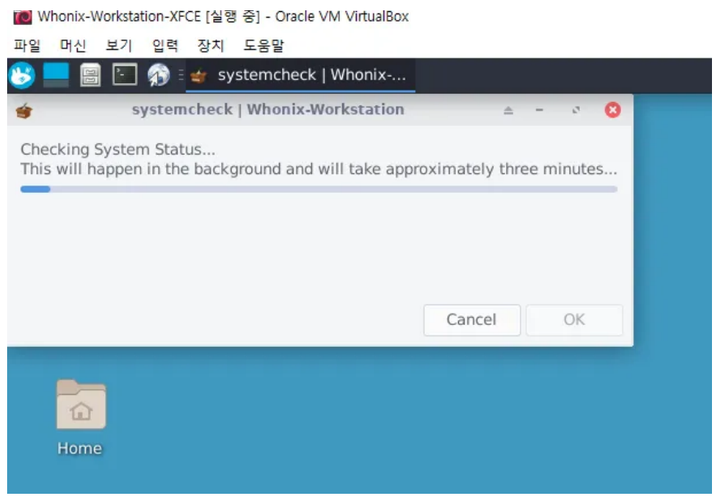
Understood / Verstanden
Not understood / Nicht verstanden
< Back
Next >
Cancel

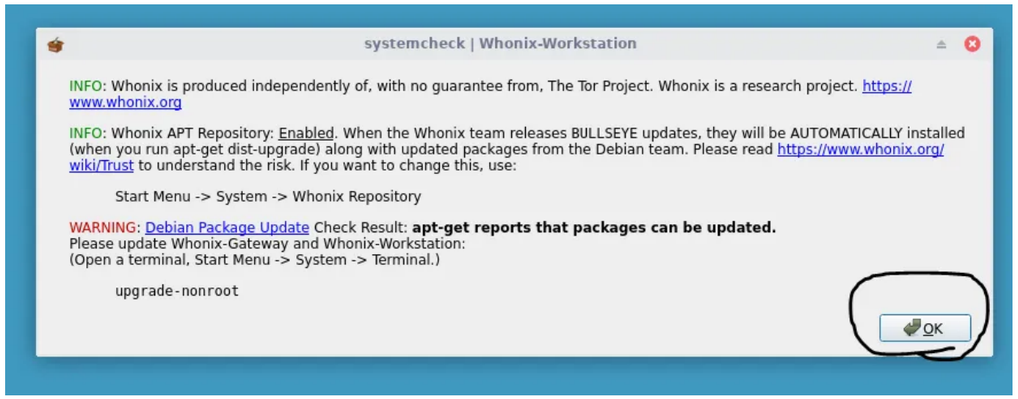
46. Finish



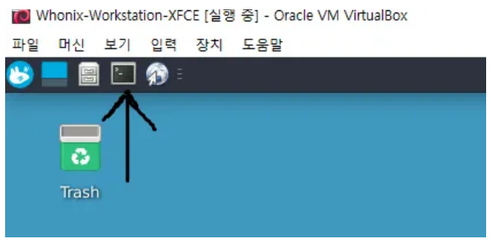
47. 기다리기


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
systemcheck | Whonix-...
systemcheck | Whonix-Workstation
Checking System Status...
This will happen in the background and will take approximately three minutes...
Cancel
OK
Home

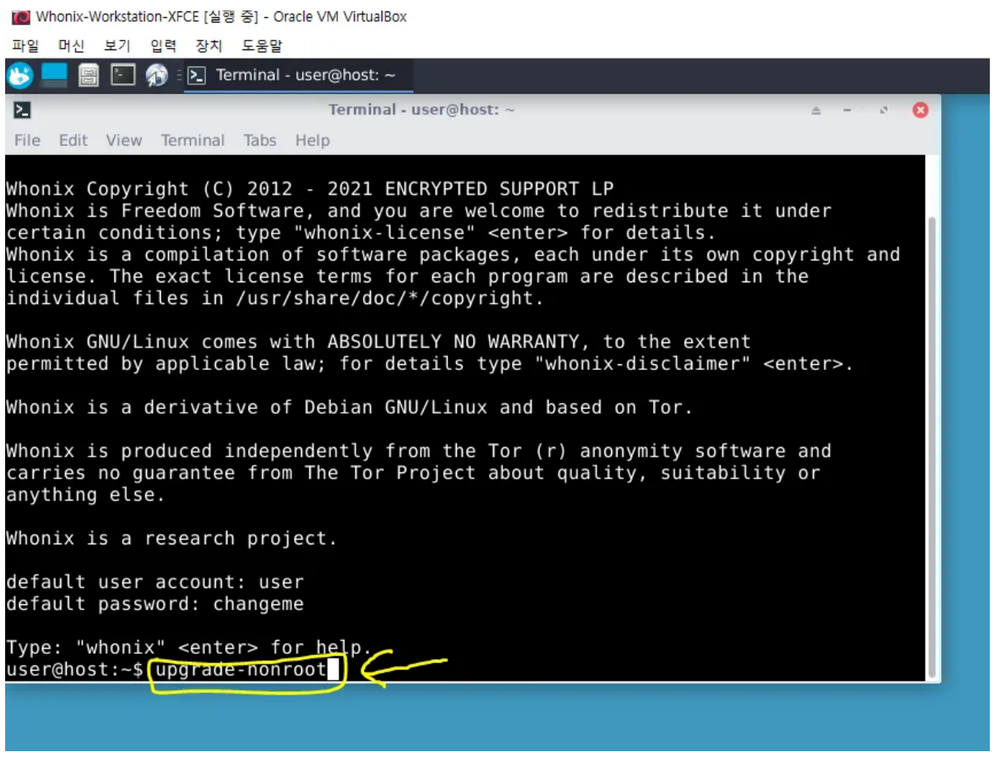
48. OK


systemcheck | Whonix-Workstation
INFO: Whonix is produced independently of, with no guarantee from, The Tor Project. Whonix is a research project. https://www.whonix.org
INFO: Whonix APT Repository: Enabled. When the Whonix team releases BULLSEYE updates, they will be AUTOMATICALLY installed (when you run apt-get dist-upgrade) along with updated packages from the Debian team. Please read https://www.whonix.org/wiki/Trust to understand the risk. If you want to change this, use:
Start Menu -> System -> Whonix Repository
WARNING: Debian Package Update Check Result: apt-get reports that packages can be updated.
Please update Whonix-Gateway and Whonix-Workstation:
(Open a terminal, Start Menu -> System -> Terminal.)
upgrade-nonroot
OK

49. 표시한 아이콘 클릭



50. upgrade-nonroot 입력하고 엔터


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
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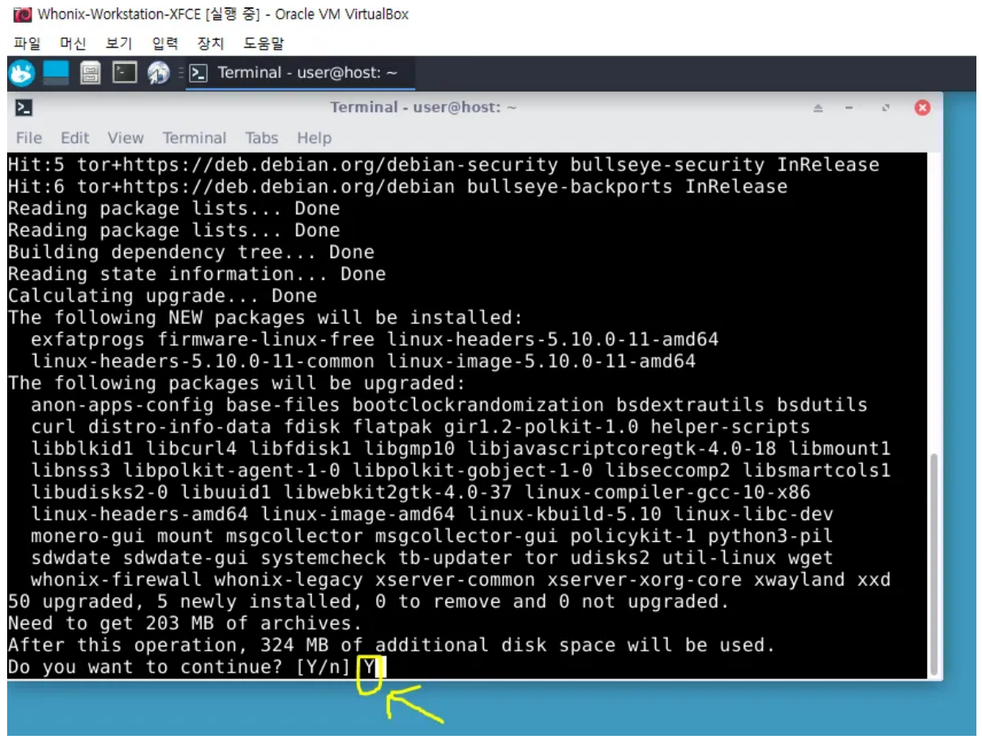
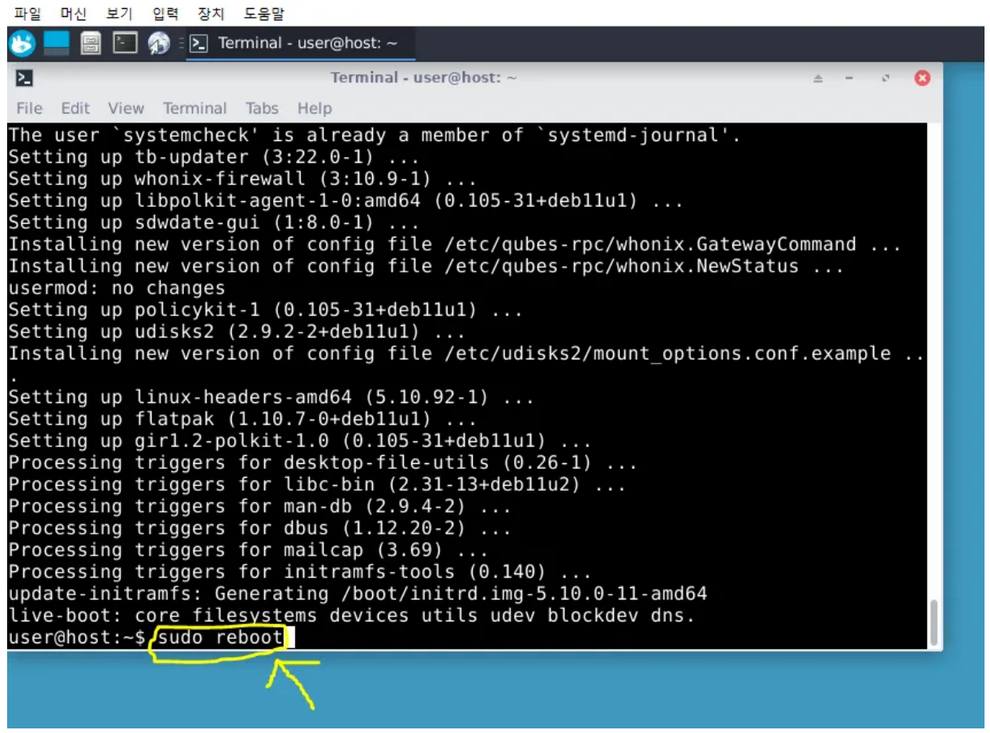
Whonix GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law; for details type "whonix-disclaimer" <enter>.
Whonix is a derivative of Debian GNU/Linux and based on Tor.
Whonix is produced independently from the Tor (r) anonymity software and
carries no guarantee from The Tor Project about quality, suitability or
anything else.
Whonix is a research project.
default user account: user
default password: changeme
Type: "whonix" <enter> for help.
user@host:~$ upgrade-nonroot

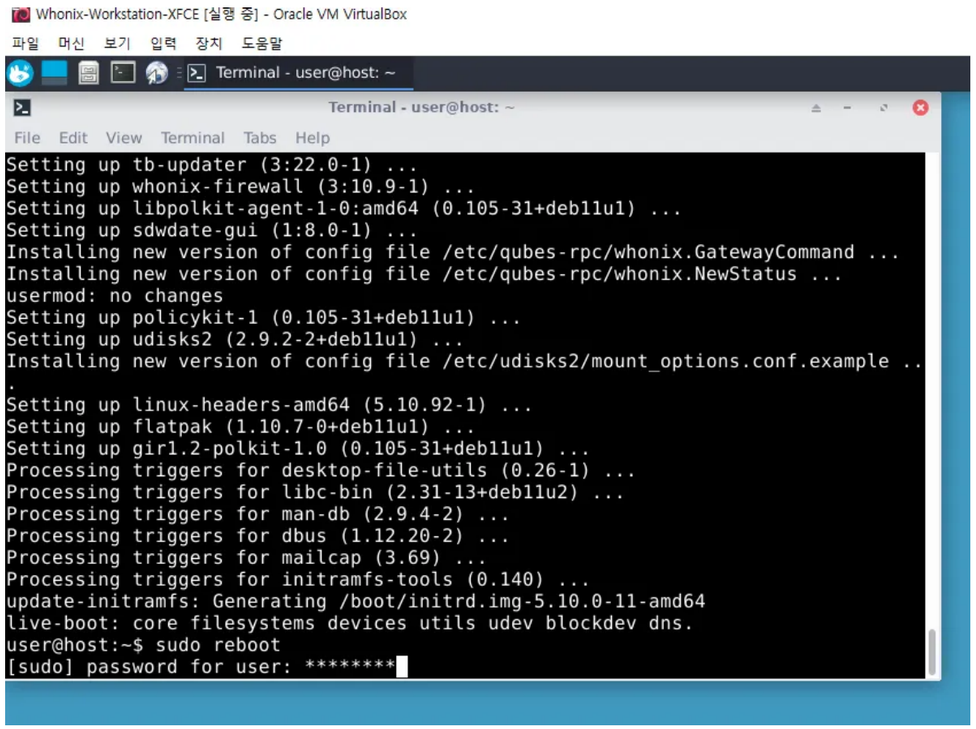
51. Y 입력하고 엔터


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
Hit:5 tor+https://deb.debian.org/debian-security bullseye-security InRelease
Hit:6 tor+https://deb.debian.org/debian bullseye-backports InRelease
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following NEW packages will be installed:
exfatprogs firmware-linux-free linux-headers-5.10.0-11-amd64
linux-headers-5.10.0-11-common linux-image-5.10.0-11-amd64
The following packages will be upgraded:
anon-apps-config base-files bootclockrandomization bsdextrautils bsdutils
curl distro-info-data fdisk flatpak gir1.2-polkit-1.0 helper-scripts
libblkid1 libcurl4 libfdisk1 libgmp10 libjavascriptcoregtk-4.0-18 libmount1
libnss3 libpolkit-agent-1-0 libpolkit-gobject-1-0 libseccomp2 libsmartcols1
libudisks2-0 libuuid1 libwebkit2gtk-4.0-37 linux-compiler-gcc-10-x86
linux-headers-amd64 linux-image-amd64 linux-kbuild-5.10 linux-libc-dev
monero-gui mount msgcollector msgcollector-gui policykit-1 python3-pil
sdwdate sdwdate-gui systemcheck tb-updater tor udisks2 util-linux wget
whonix-firewall whonix-legacy xserver-common xserver-xorg-core xwayland xxd
50 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
Need to get 203 MB of archives.
After this operation, 324 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y

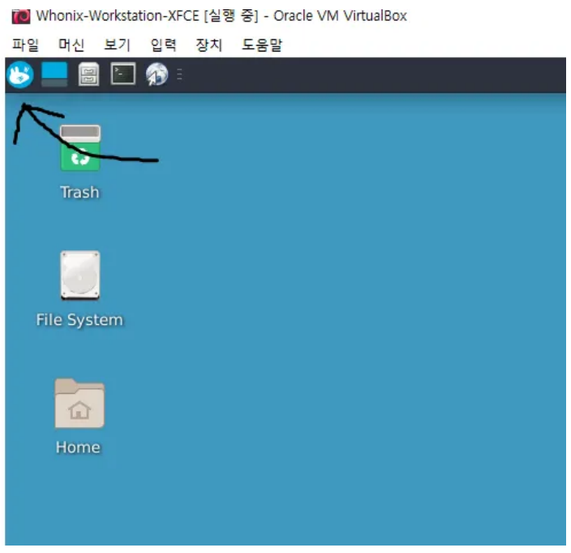
52. sudo reboot 입력하고 엔터


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
The user `systemcheck' is already a member of `systemd-journal'.
Setting up tb-updater (3:22.0-1) ...
Setting up whonix-firewall (3:10.9-1) ...
Setting up libpolkit-agent-1-0:amd64 (0.105-31+deb11u1) ...
Setting up sdwdate-gui (1:8.0-1) ...
Installing new version of config file /etc/qubes-rpc/whonix.GatewayCommand ...
Installing new version of config file /etc/qubes-rpc/whonix.NewStatus ...
usermod: no changes
Setting up policykit-1 (0.105-31+deb11u1) ...
Setting up udisks2 (2.9.2-2+deb11u1) ...
Installing new version of config file /etc/udisks2/mount_options.conf.example ..
.
Setting up linux-headers-amd64 (5.10.92-1) ...
Setting up flatpak (1.10.7-0+deb11u1) ...
Setting up gir1.2-polkit-1.0 (0.105-31+deb11u1) ...
Processing triggers for desktop-file-utils (0.26-1) ...
Processing triggers for libc-bin (2.31-13+deb11u2) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for dbus (1.12.20-2) ...
Processing triggers for mailcap (3.69) ...
Processing triggers for initramfs-tools (0.140) ...
update-initramfs: Generating /boot/initrd.img-5.10.0-11-amd64
live-boot: core filesystems devices utils udev blockdev dns.
user@host:~$ sudo reboot

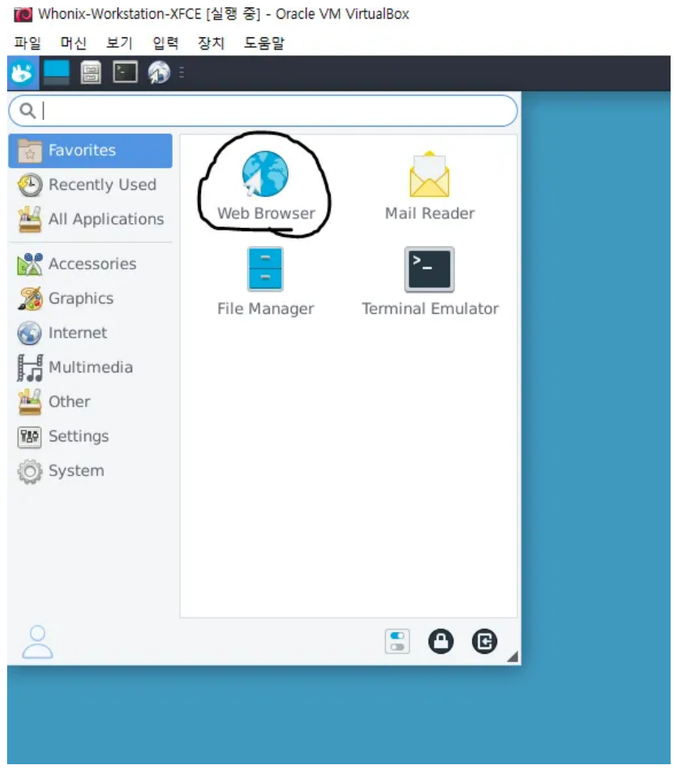
53. changeme 입력하고 엔터


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
Setting up tb-updater (3:22.0-1) ...
Setting up whonix-firewall (3:10.9-1) ...
Setting up libpolkit-agent-1-0:amd64 (0.105-31+deb11u1) ...
Setting up sdwdate-gui (1:8.0-1) ...
Installing new version of config file /etc/qubes-rpc/whonix.GatewayCommand ...
Installing new version of config file /etc/qubes-rpc/whonix.NewStatus ...
usermod: no changes
Setting up policykit-1 (0.105-31+deb11u1) ...
Setting up udisks2 (2.9.2-2+deb11u1) ...
Installing new version of config file /etc/udisks2/mount_options.conf.example ..
.
Setting up linux-headers-amd64 (5.10.92-1) ...
Setting up flatpak (1.10.7-0+deb11u1) ...
Setting up gir1.2-polkit-1.0 (0.105-31+deb11u1) ...
Processing triggers for desktop-file-utils (0.26-1) ...
Processing triggers for libc-bin (2.31-13+deb11u2) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for dbus (1.12.20-2) ...
Processing triggers for mailcap (3.69) ...
Processing triggers for initramfs-tools (0.140) ...
update-initramfs: Generating /boot/initrd.img-5.10.0-11-amd64
live-boot: core filesystems devices utils udev blockdev dns.
user@host:~$ sudo reboot
[sudo] password for user: ********

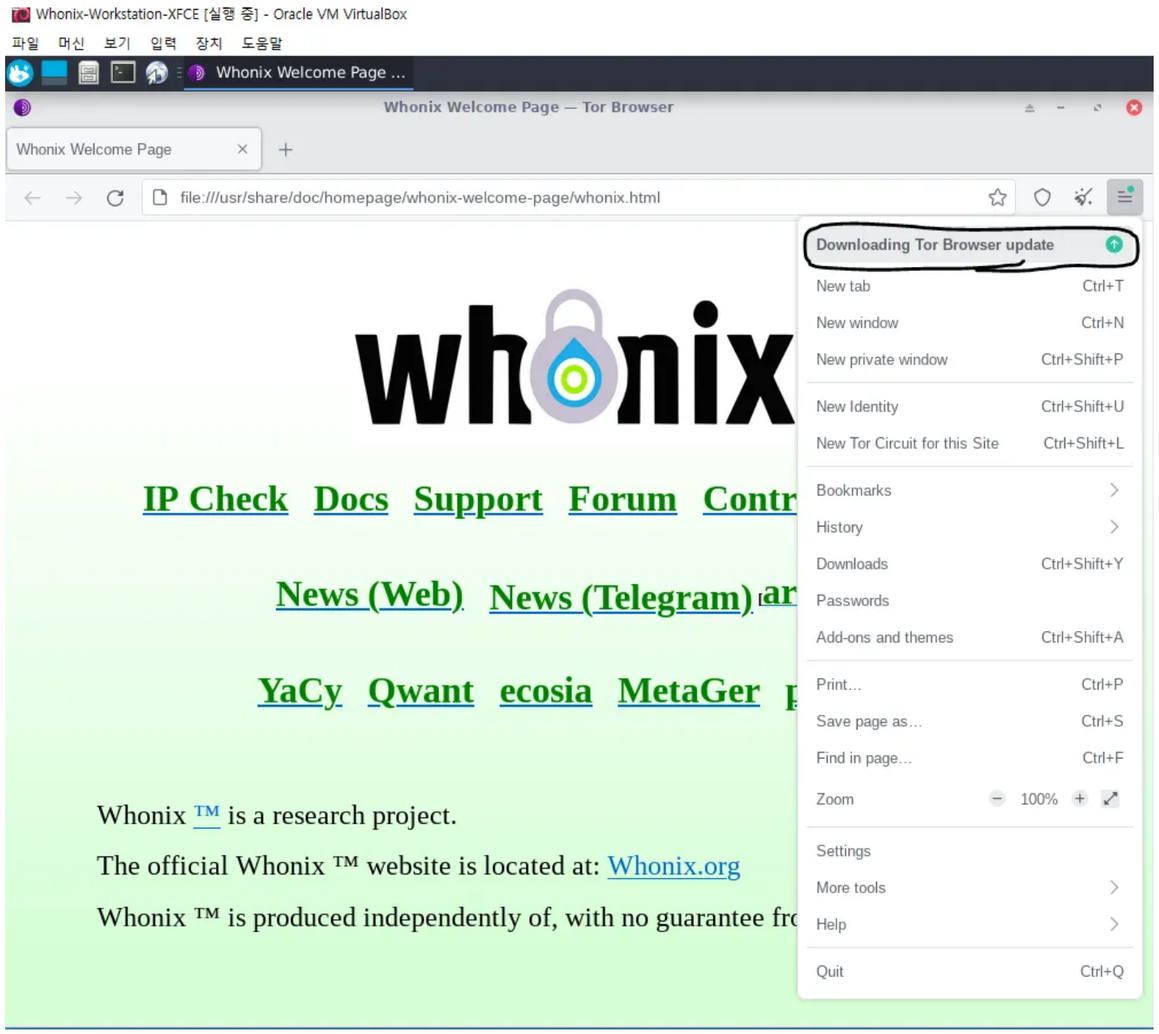
54. 표시한 아이콘 클릭



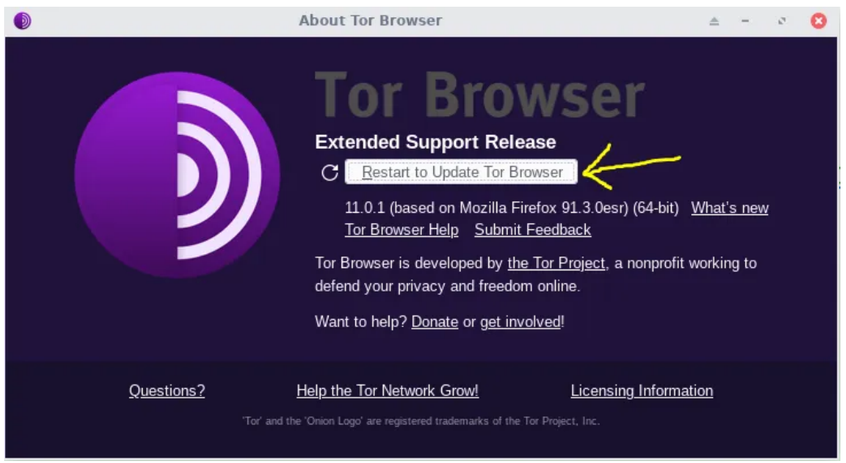
55. Web Browser 클릭



56. Downloading Tor Browser update 클릭

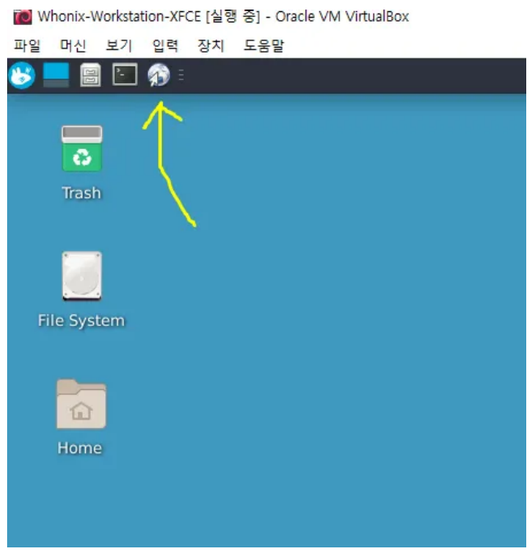


57. Restart to Update Tor Browser 클릭

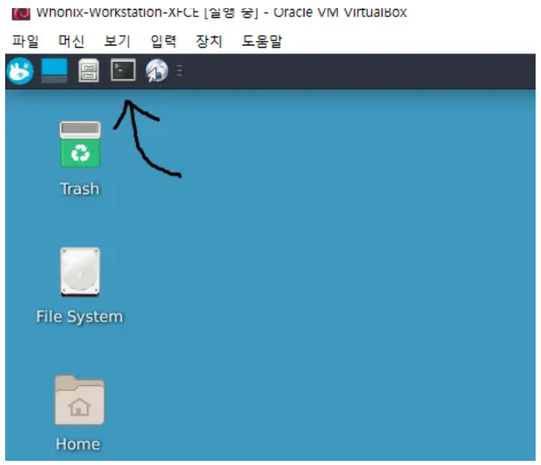


58. 연결이 잘되나 확인

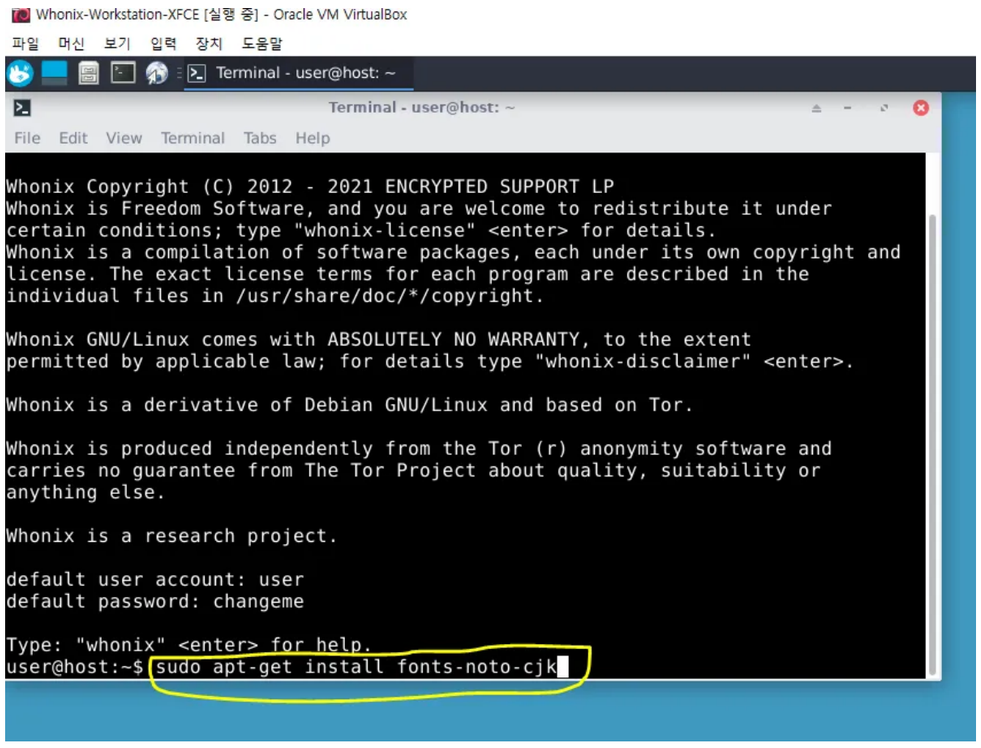
59. 표시한 아이콘을 클릭하여 토르브라우저를 이용할 수도 있다.



60. 표시한 아이콘 클릭



61. sudo apt-get install fonts-noto-cjk 입력하고 엔터


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
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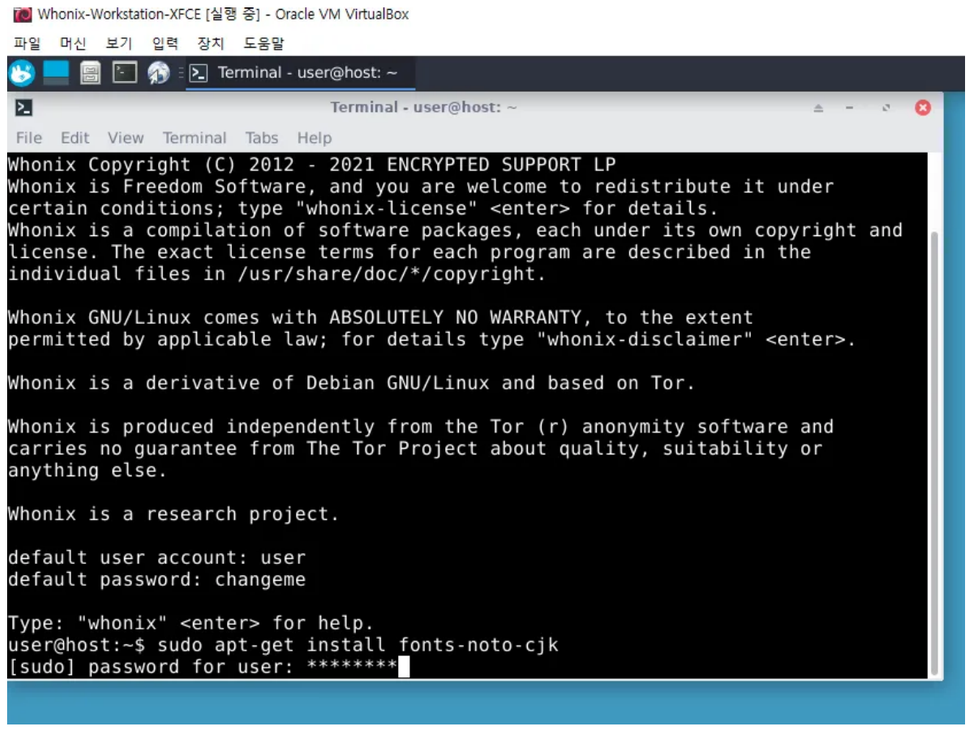
Whonix is a derivative of Debian GNU/Linux and based on Tor.
Whonix is produced independently from the Tor (r) anonymity software and
carries no guarantee from The Tor Project about quality, suitability or
anything else.
Whonix is a research project.
default user account: user
default password: changeme
Type: "whonix" <enter> for help.
user@host:~$ sudo apt-get install fonts-noto-cjk

62. changeme 입력하고 엔터


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
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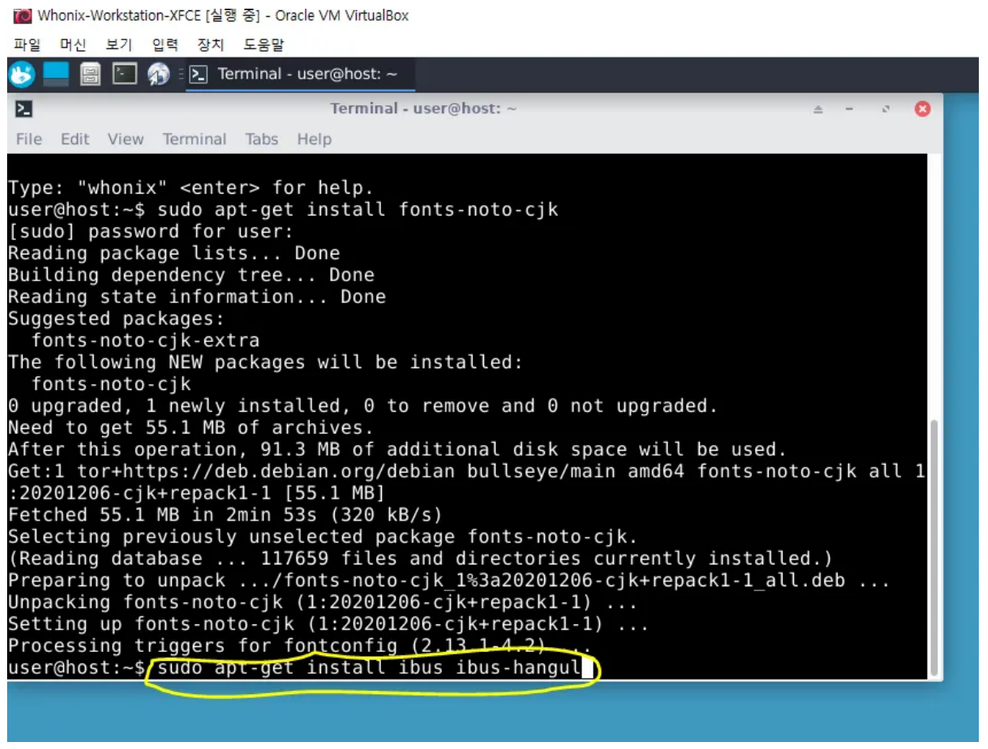
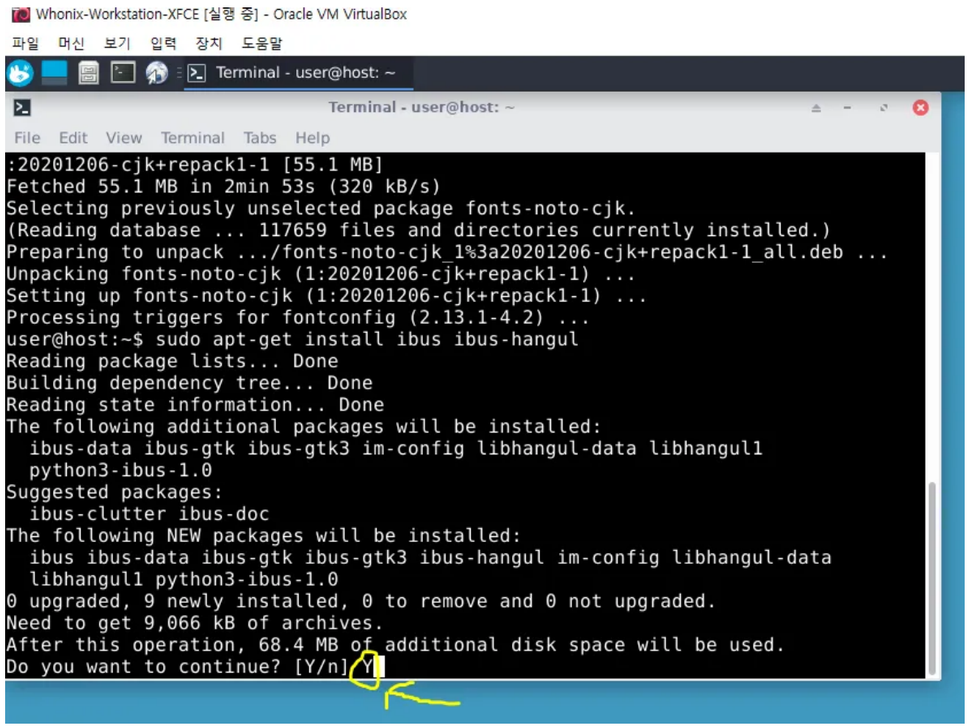
Whonix is a derivative of Debian GNU/Linux and based on Tor.
Whonix is produced independently from the Tor (r) anonymity software and
carries no guarantee from The Tor Project about quality, suitability or
anything else.
Whonix is a research project.
default user account: user
default password: changeme
Type: "whonix" <enter> for help.
user@host:~$ sudo apt-get install fonts-noto-cjk
[sudo] password for user: ********

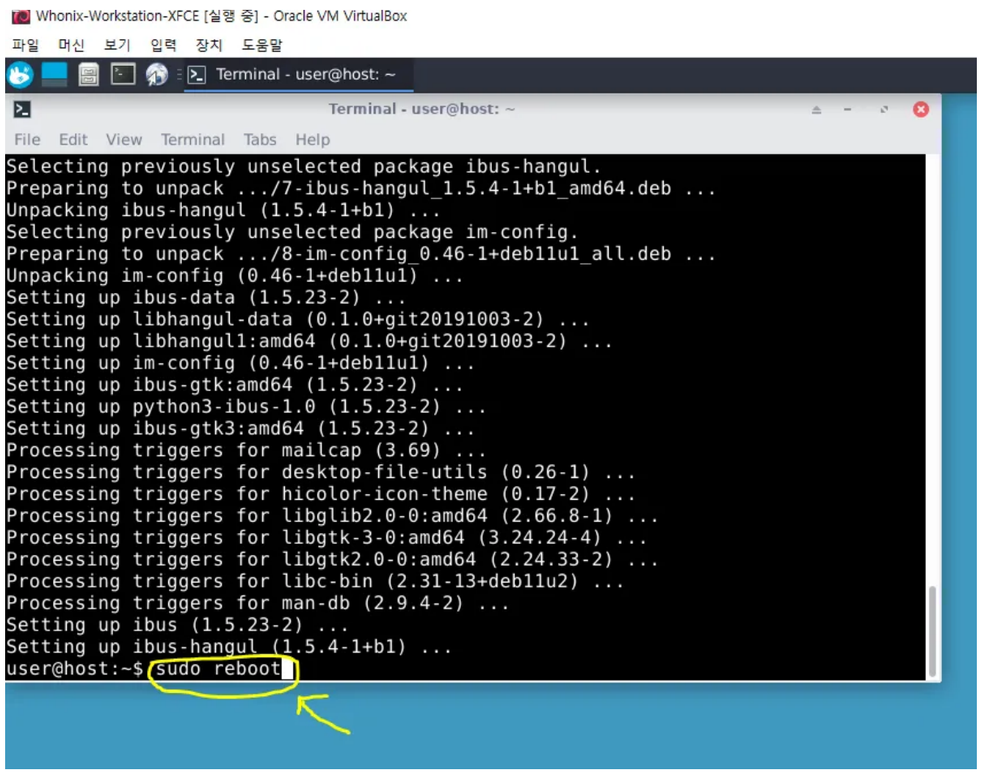
63. sudo apt-get install ibus ibus-hangul 입력하고 엔터


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
Type: "whonix" <enter> for help.
user@host:~$ sudo apt-get install fonts-noto-cjk
[sudo] password for user:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
fonts-noto-cjk-extra
The following NEW packages will be installed:
fonts-noto-cjk
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 55.1 MB of archives.
After this operation, 91.3 MB of additional disk space will be used.
Get:1 tor+https://deb.debian.org/debian bullseye/main amd64 fonts-noto-cjk all 1
:20201206-cjk+repack1-1 [55.1 MB]
Fetched 55.1 MB in 2min 53s (320 kB/s)
Selecting previously unselected package fonts-noto-cjk.
(Reading database ... 117659 files and directories currently installed.)
Preparing to unpack .../fonts-noto-cjk_1%3a20201206-cjk+repack1-1_all.deb ...
Unpacking fonts-noto-cjk (1:20201206-cjk+repack1-1) ...
Setting up fonts-noto-cjk (1:20201206-cjk+repack1-1) ...
Processing triggers for fontconfig (2.13.1-4.2) ...
user@host:~$ sudo apt-get install ibus ibus-hangul

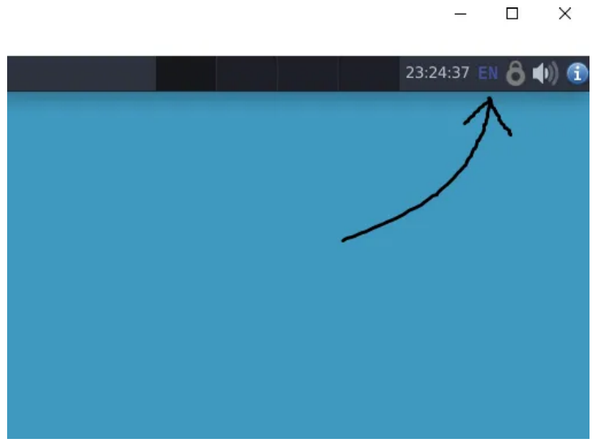
64. Y 입력하고 엔터


Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
:20201206-cjk+repack1-1 [55.1 MB]
Fetched 55.1 MB in 2min 53s (320 kB/s)
Selecting previously unselected package fonts-noto-cjk.
(Reading database ... 117659 files and directories currently installed.)
Preparing to unpack .../fonts-noto-cjk_1%3a20201206-cjk+repack1-1_all.deb ...
Unpacking fonts-noto-cjk (1:20201206-cjk+repack1-1) ...
Setting up fonts-noto-cjk (1:20201206-cjk+repack1-1) ...
Processing triggers for fontconfig (2.13.1-4.2) ...
user@host:~$ sudo apt-get install ibus ibus-hangul
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
ibus-data ibus-gtk ibus-gtk3 im-config libhangul-data libhangul1
python3-ibus-1.0
Suggested packages:
ibus-clutter ibus-doc
The following NEW packages will be installed:
ibus ibus-data ibus-gtk ibus-gtk3 ibus-hangul im-config libhangul-data
libhangul1 python3-ibus-1.0
0 upgraded, 9 newly installed, 0 to remove and 0 not upgraded.
Need to get 9,066 kB of archives.
After this operation, 68.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y

65. sudo reboot 입력하고 엔터

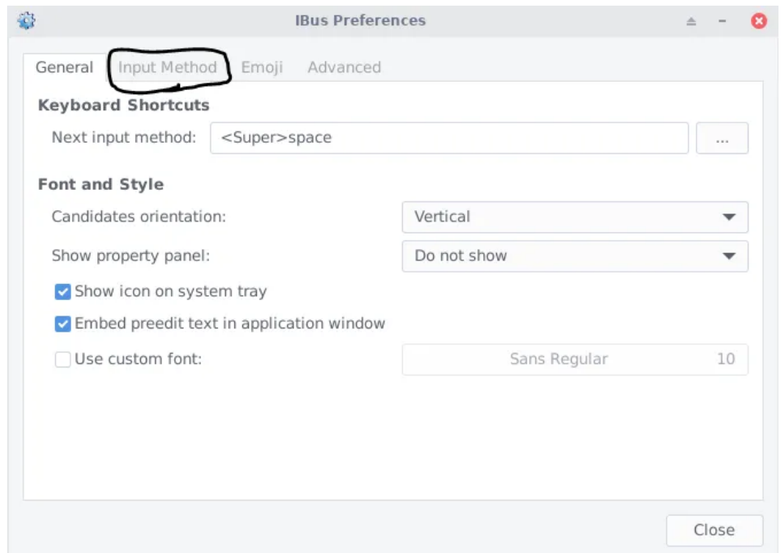

Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Terminal - user@host: ~
Terminal - user@host: ~
File Edit View Terminal Tabs Help
Selecting previously unselected package ibus-hangul.
Preparing to unpack .../7-ibus-hangul_1.5.4-1+b1_amd64.deb ...
Unpacking ibus-hangul (1.5.4-1+b1) ...
Selecting previously unselected package im-config.
Preparing to unpack .../8-im-config_0.46-1+deb11u1_all.deb ...
Unpacking im-config (0.46-1+deb11u1) ...
Setting up ibus-data (1.5.23-2) ...
Setting up libhangul-data (0.1.0+git20191003-2) ...
Setting up libhangul1:amd64 (0.1.0+git20191003-2) ...
Setting up im-config (0.46-1+deb11u1) ...
Setting up ibus-gtk:amd64 (1.5.23-2) ...
Setting up python3-ibus-1.0 (1.5.23-2) ...
Setting up ibus-gtk3:amd64 (1.5.23-2) ...
Processing triggers for mailcap (3.69) ...
Processing triggers for desktop-file-utils (0.26-1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for libglib2.0-0:amd64 (2.66.8-1) ...
Processing triggers for libgtk-3-0:amd64 (3.24.24-4) ...
Processing triggers for libgtk2.0-0:amd64 (2.24.33-2) ...
Processing triggers for libc-bin (2.31-13+deb11u2) ...
Processing triggers for man-db (2.9.4-2) ...
Setting up ibus (1.5.23-2) ...
Setting up ibus-hangul (1.5.4-1+b1) ...
user@host:~$ sudo reboot

66. 표시한 아이콘 우클릭

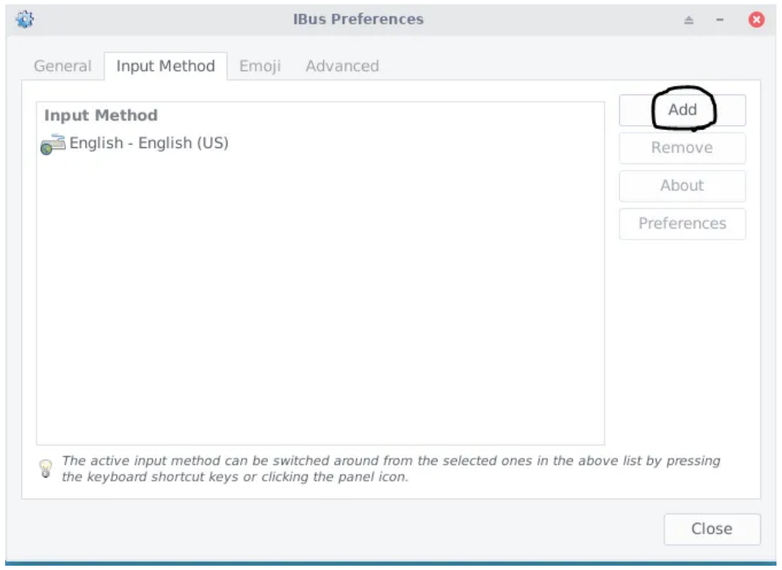


67. Preferences 클릭

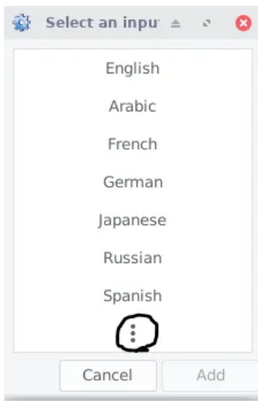
68. Input Method 클릭



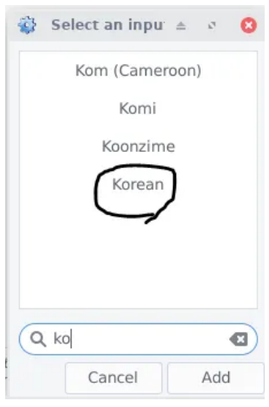
69. Add 클릭



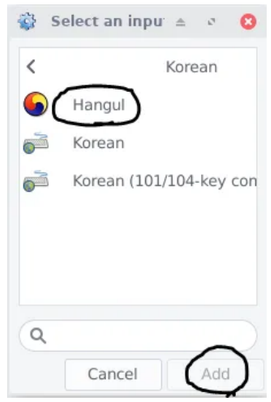
70. 말줄임표 클릭



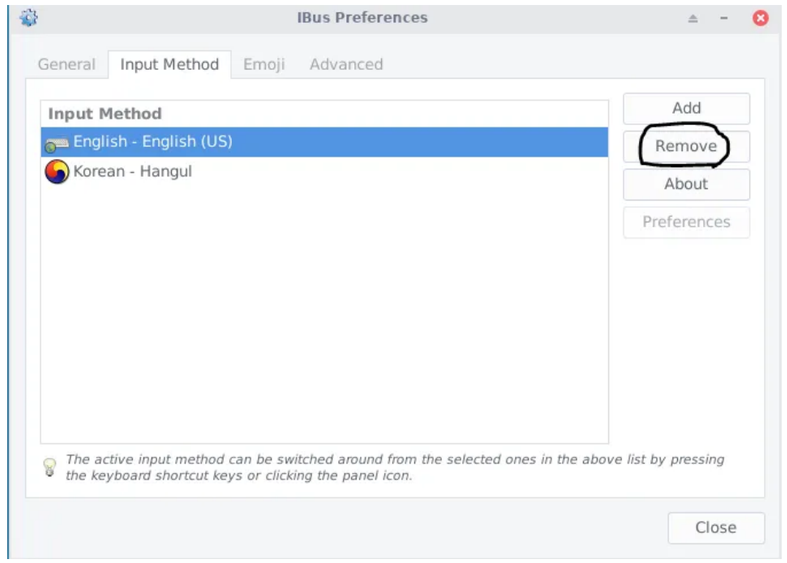
71. Korean 클릭



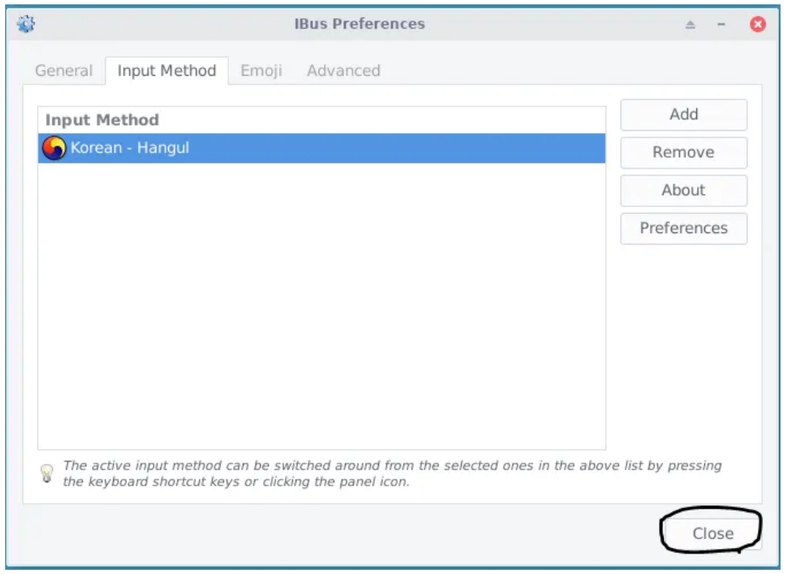
72. Hangul 선택하고 Add 클릭



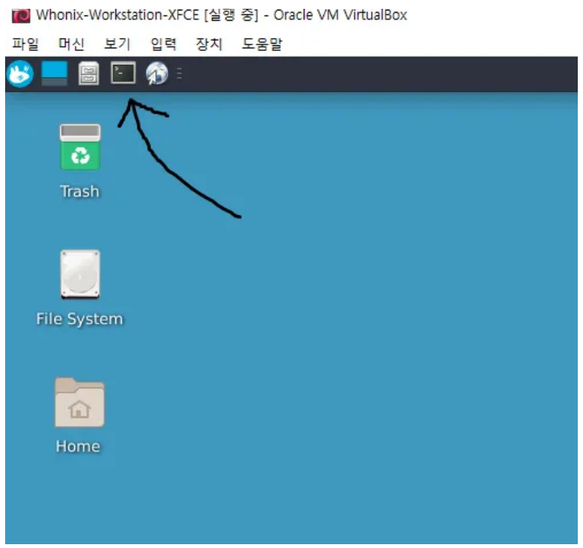
73. English 클릭하고 Remove 클릭



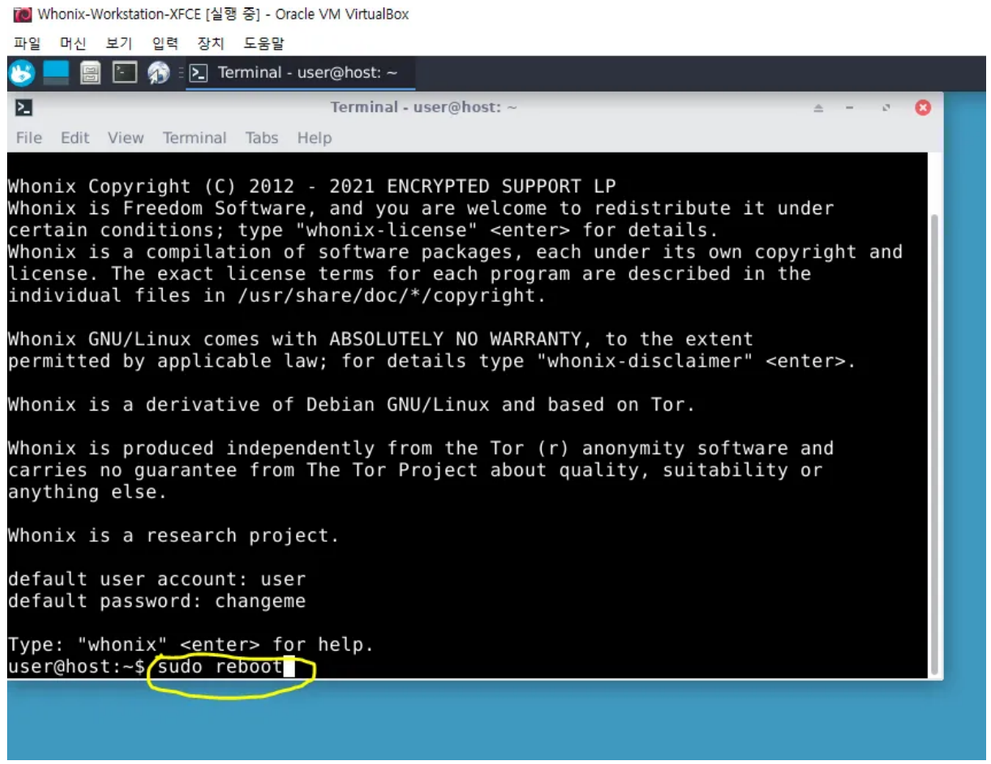
74. Close 클릭



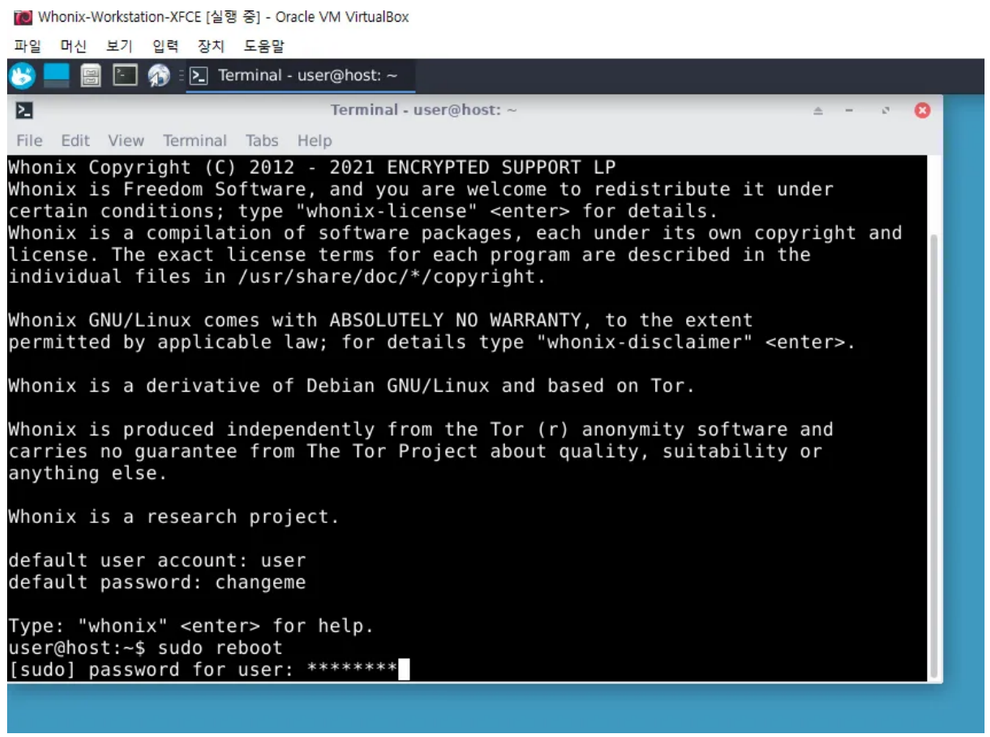
75. 표시한 아이콘 클릭



76. sudo reboot 입력하고 엔터

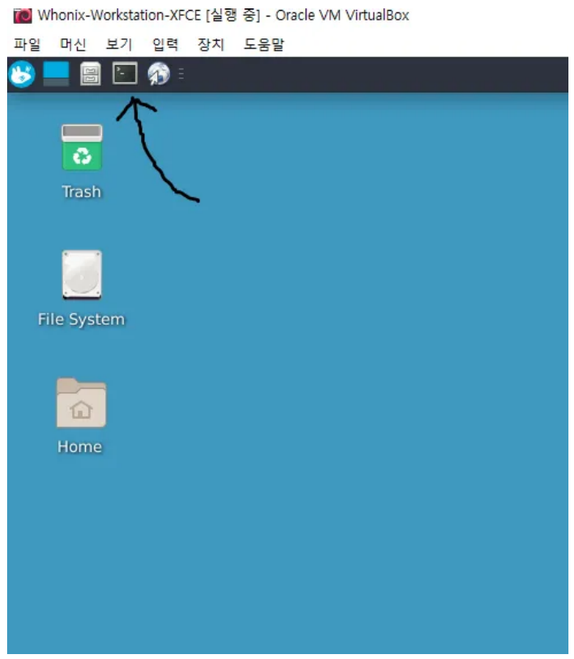


77. changeme 입력하고 엔터

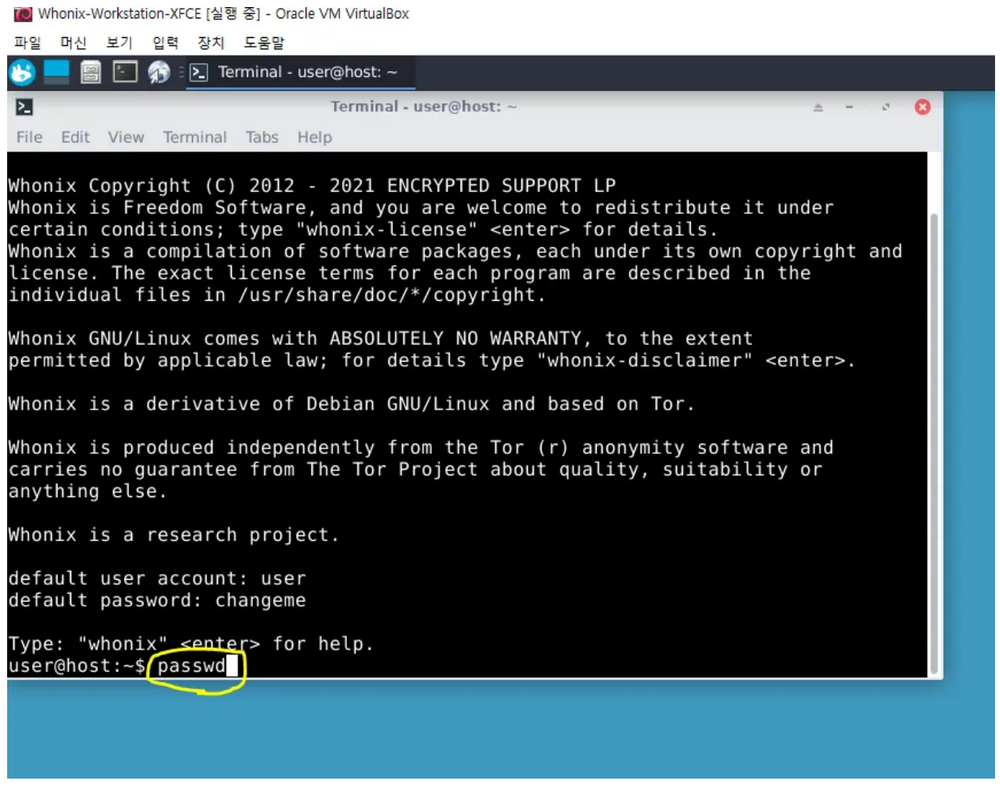


78. 한글 잘 입력되는지 확인한다. shift+spacebar로 한/영 전환 가능하다.

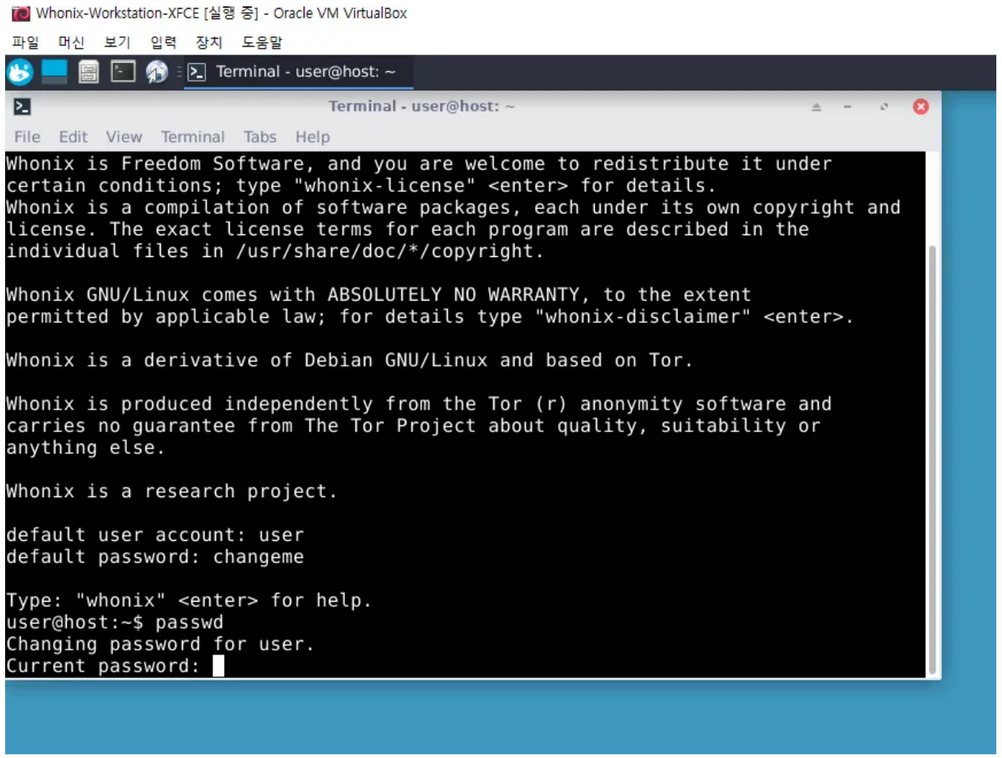
79. 표시한 아이콘 클릭



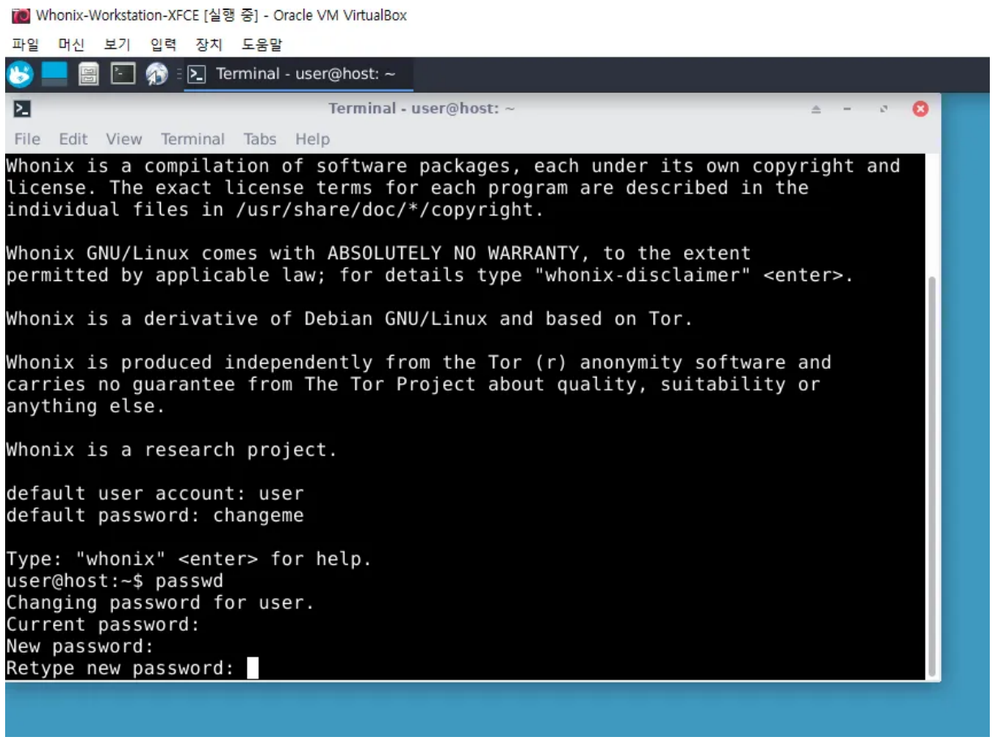
80. passwd 입력하고 엔터



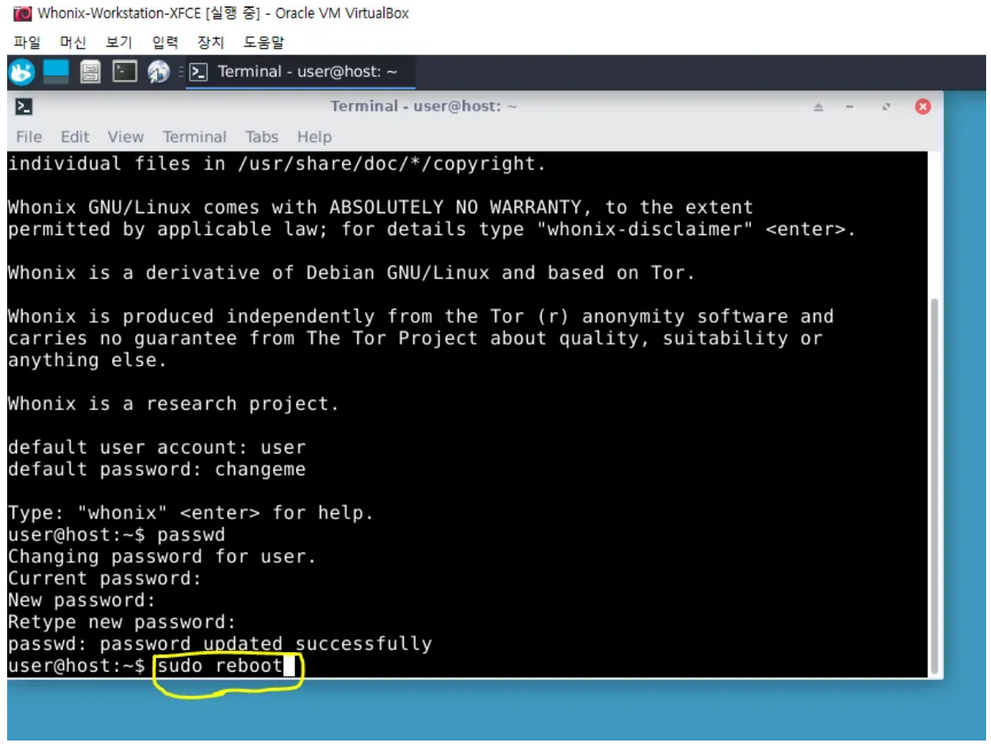
81. changeme 입력하고 엔터



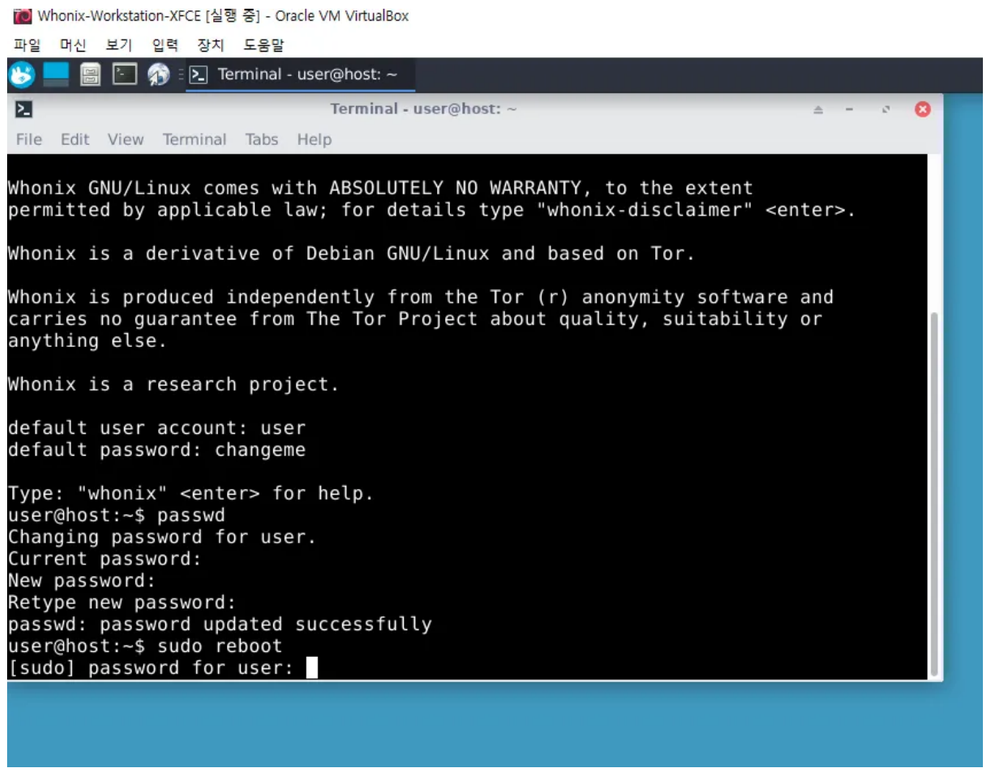
82. 사용자가 만들고 싶은 비밀번호 2번 입력



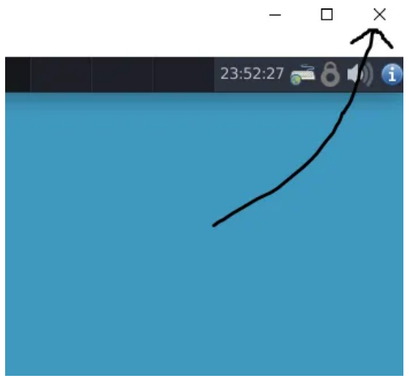
83. sudo reboot 입력하고 엔터



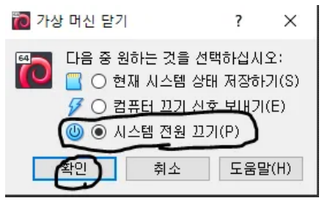
84. 방금 만든 새 비밀번호 입력 후 엔터



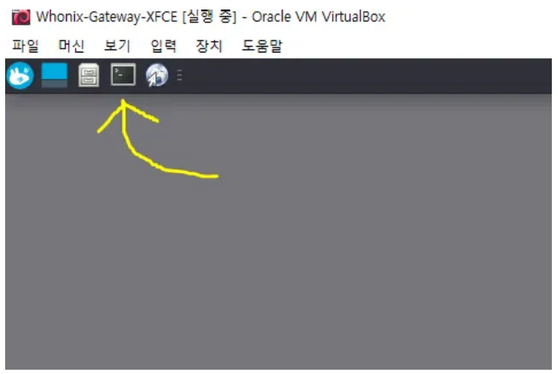
85. Workstation 창 닫기



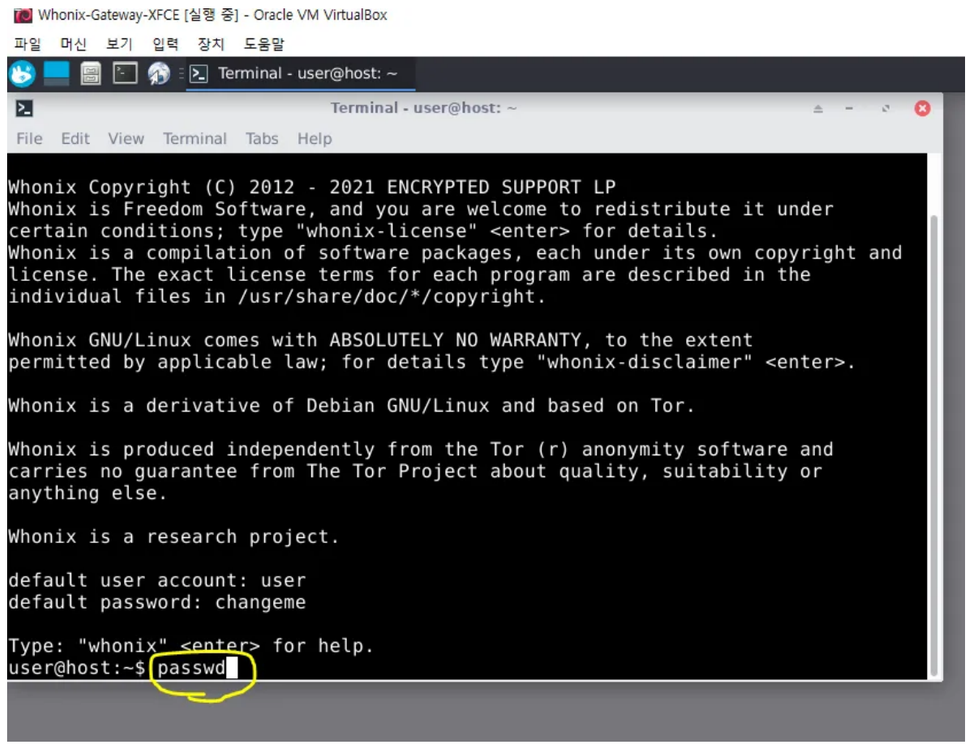
86. 시스템 전원 끄기 선택 후 확인



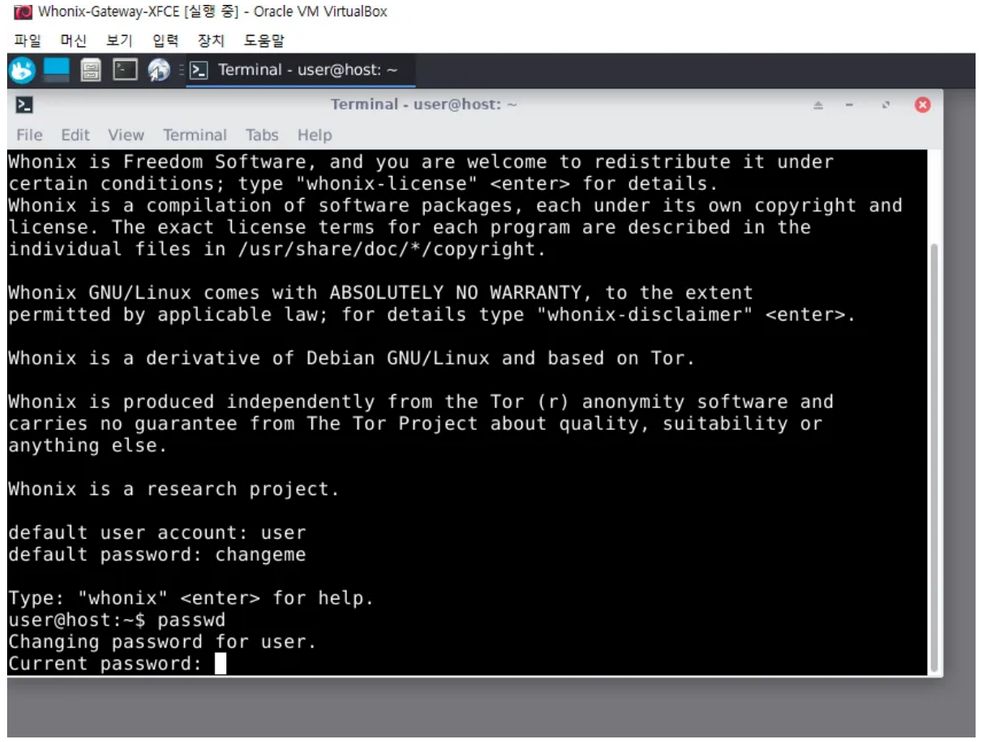
87. Gateway에서 표시한 아이콘 클릭



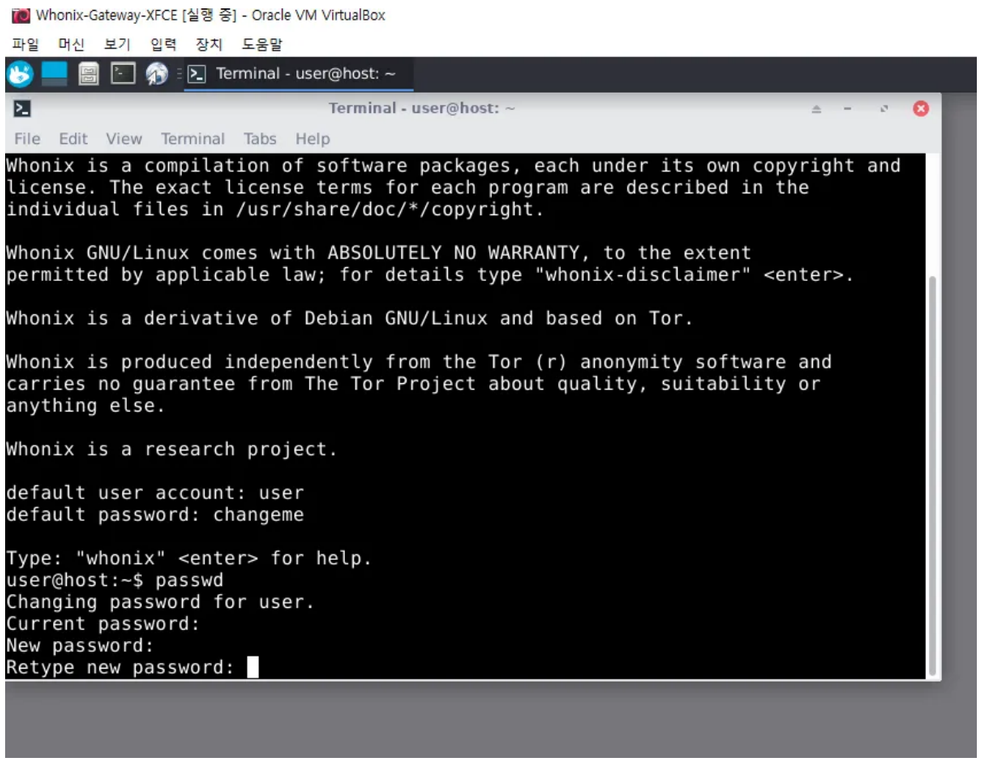
88. passwd 입력하고 엔터



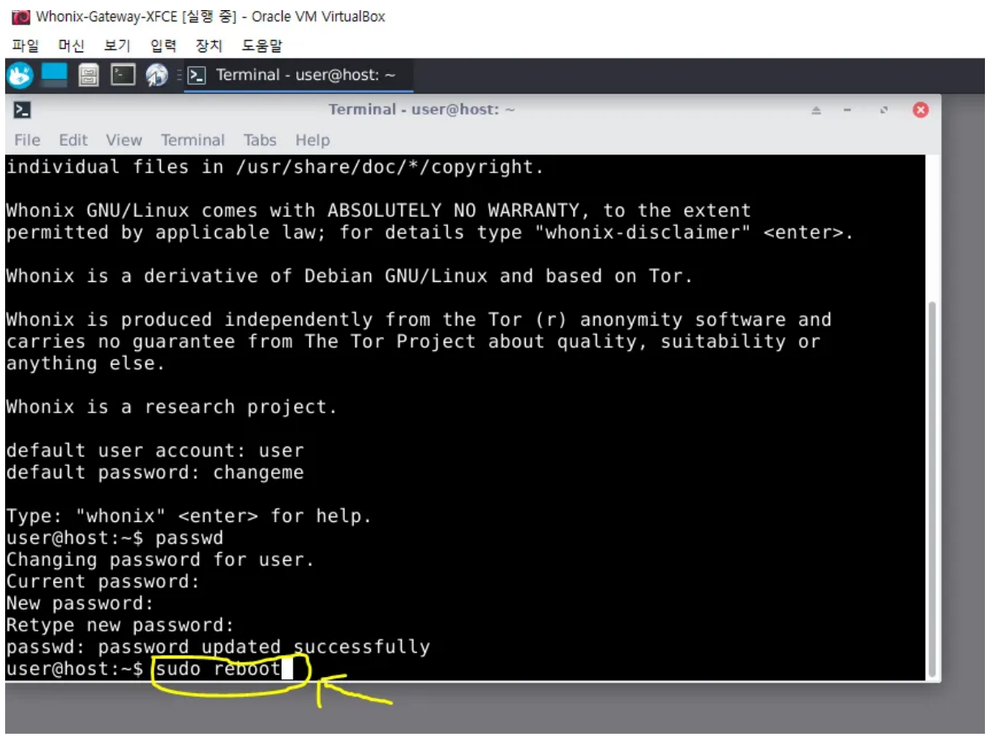
89. changeme 입력하고 엔터



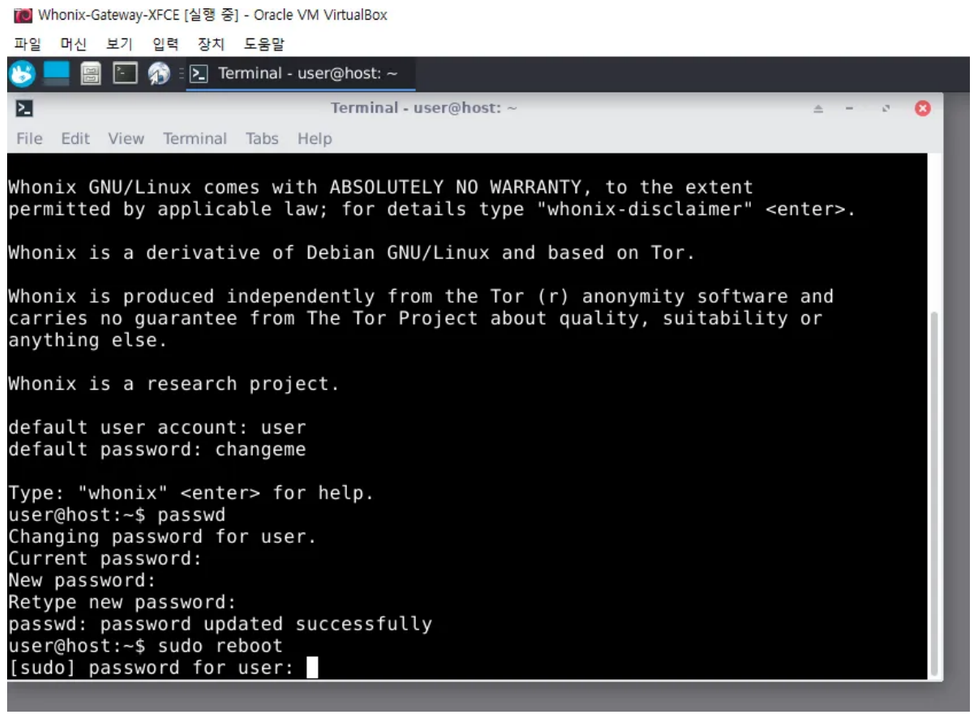
90. 사용자가 만들고 싶은 비밀번호 2번 입력



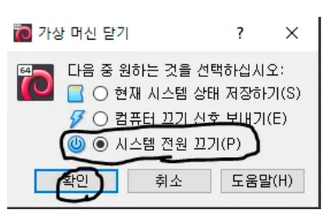
91. sudo reboot 입력하고 엔터



92. 방금 만든 새 비밀번호 입력 후 엔터



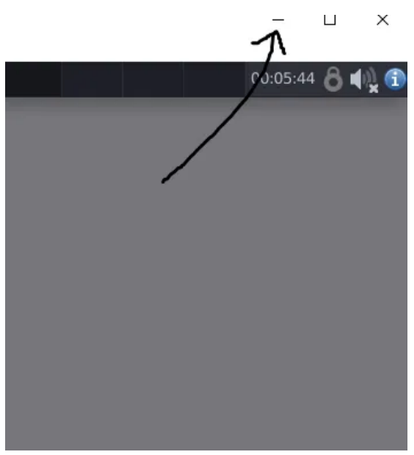
93. Gateway 창 닫기 클릭하고 시스템 전원 끄기 선택 후 확인



94. 둘 다 전원이 꺼져 있는지 확인

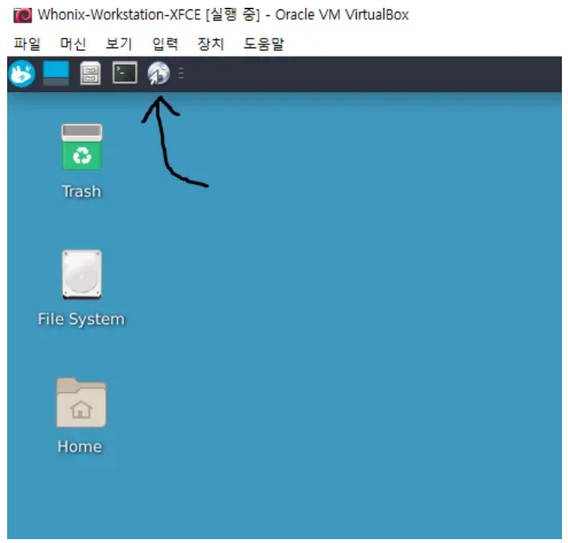
95. Gateway 선택하고 시작 클릭

96. 창 내려놓기



97. Workstation 선택하고 시작 클릭

98. Tor Browser 아이콘 클릭



99. 웹서핑을 즐기기

Whonix-Workstation-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Whonix Welcome Page ...
Whonix Welcome Page — Tor Browser
Whonix Welcome Page
수고하셨습니다!
수고하셨습니다! — Search with DuckDuckGo
This time, search with:
IP Check Docs Support Forum Contribute Donate
News (Web) News (Telegram) archive
YaCy Qwant ecosia MetaGer peekier
Whonix ™ is a research project.
The official Whonix ™ website is located at: Whonix.org
Whonix ™ is produced independently of, with no guarantee from, The Tor® Project.

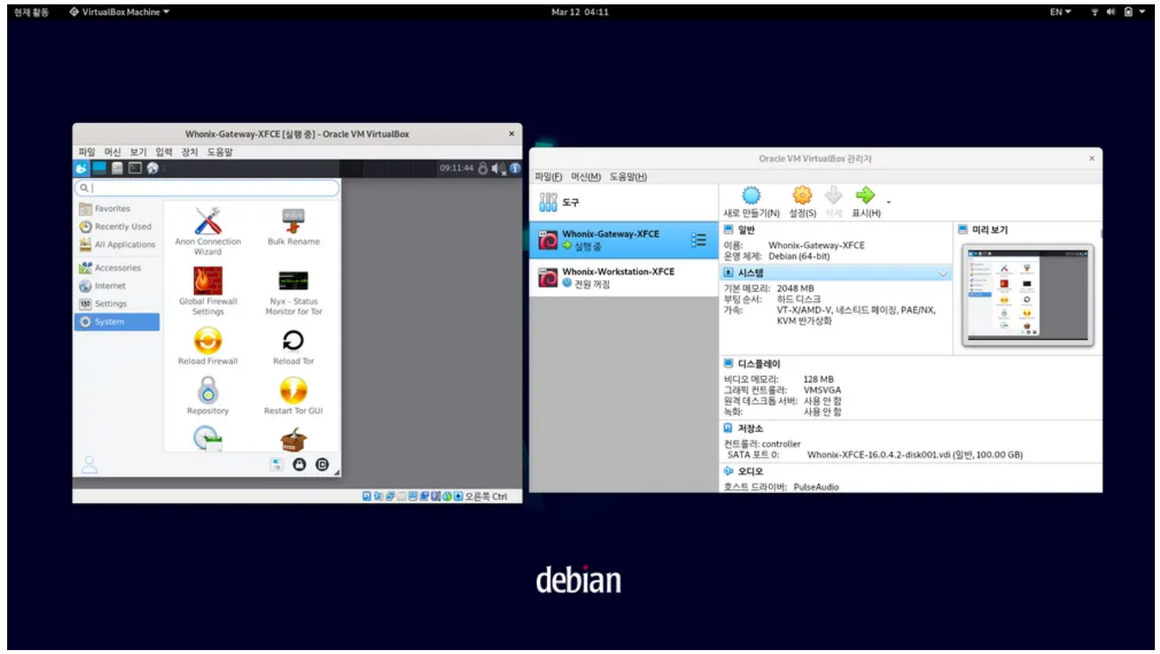
100. Whonix에서 전원을 켤 때는 먼저 Gateway를 켠 뒤 Workstation을 켠다. 반대로 Whonix에서 전원을 끌 때는 먼저 Workstation을 끈 뒤 Gateway를 끈다.

Whonix를 처음 써보려 하는 초보자들을 위해 작성하였다. 도움이 되기를 바란다.

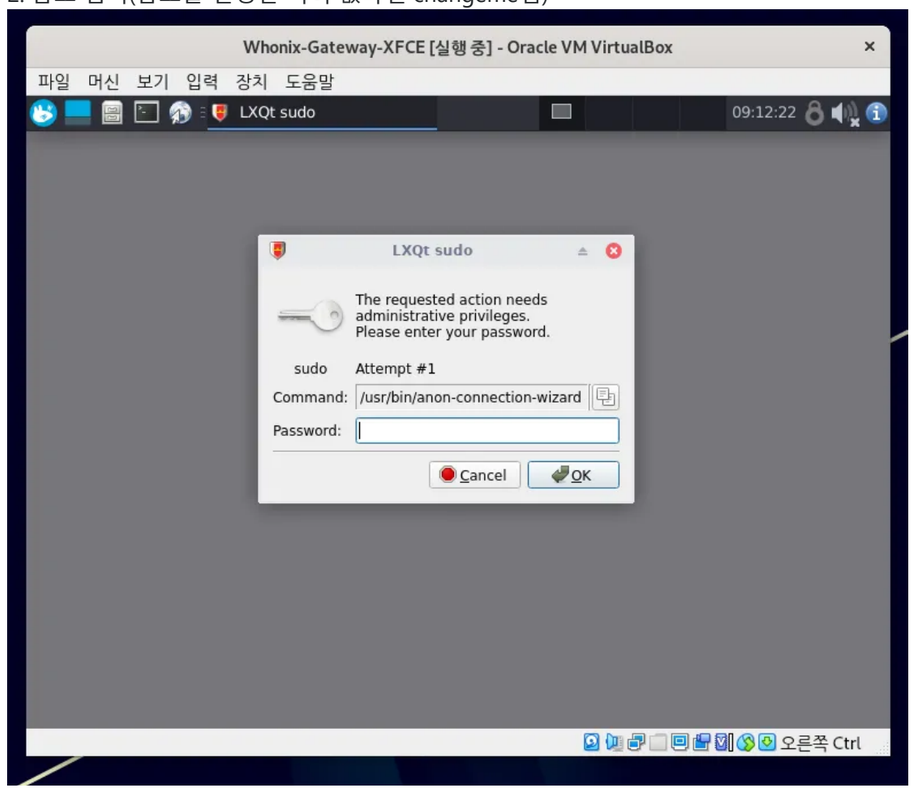
6. 브릿지 설정 방법

브릿지를 사용하고자 할 때 BIOS, Host OS, Whonix-Gateway, Whonix-Workstation의 시간대(Time Zone)를 모두 UTC로 설정해 줘야 한다. 대한민국의 시간대는 UTC+9이다.

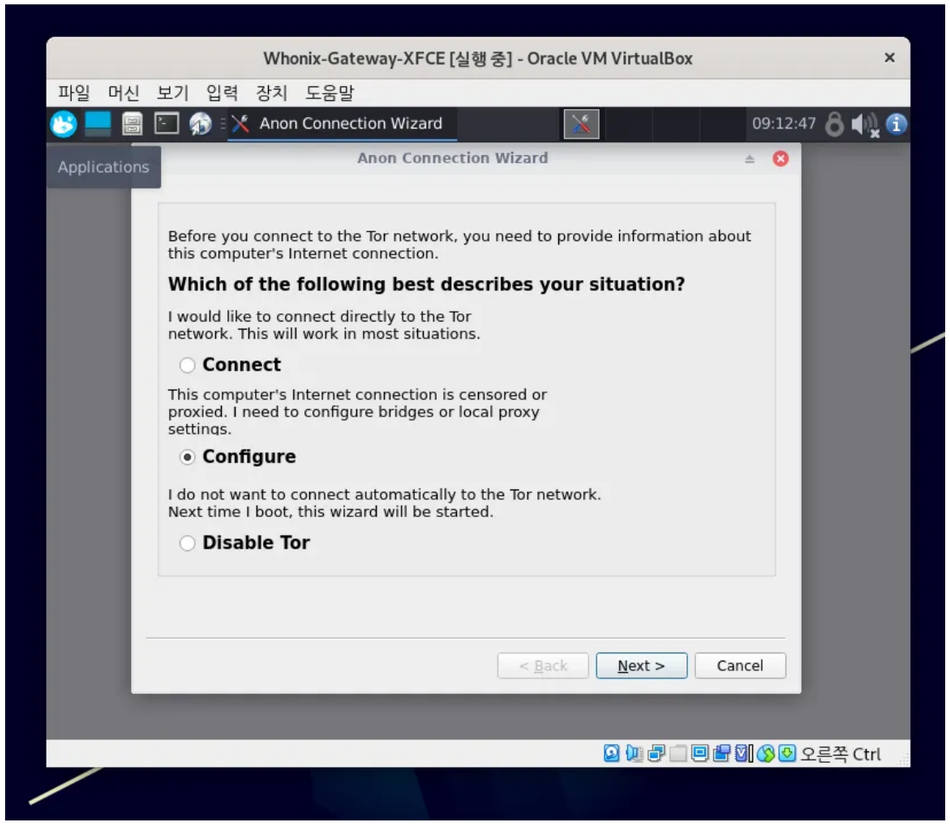
1. Gateway에서 왼쪽 상단 하늘색 아이콘(Start Menu) 클릭 -> System 클릭 -> Anon Connection Wizard 클릭



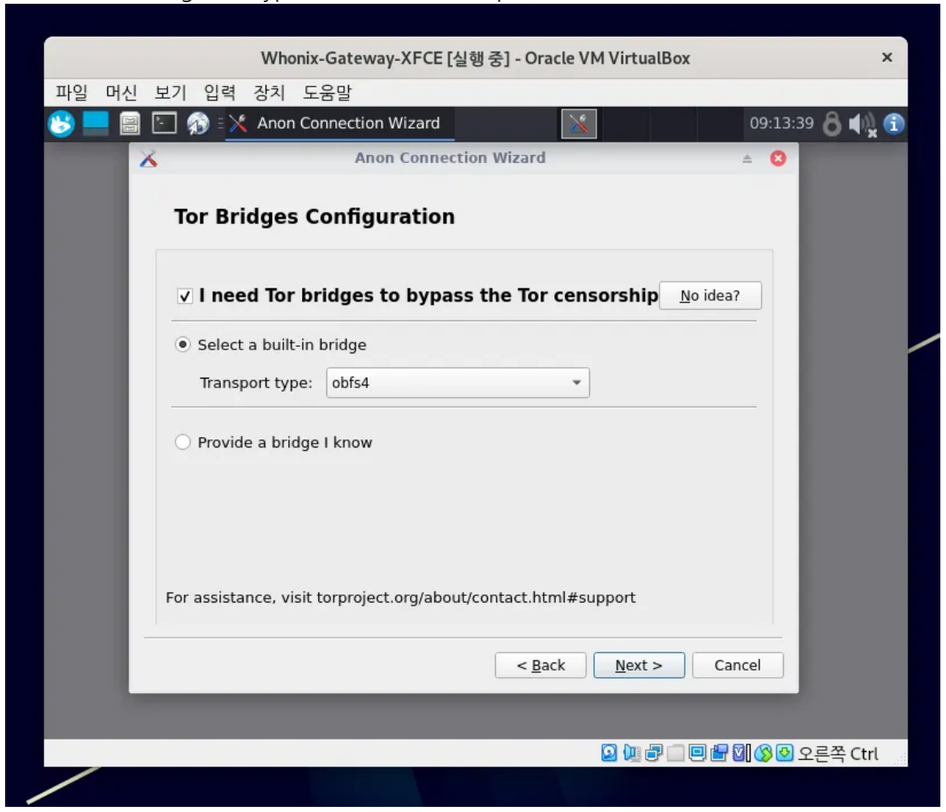
2. 암호 입력(암호를 변경한 적이 없다면 changeme임)



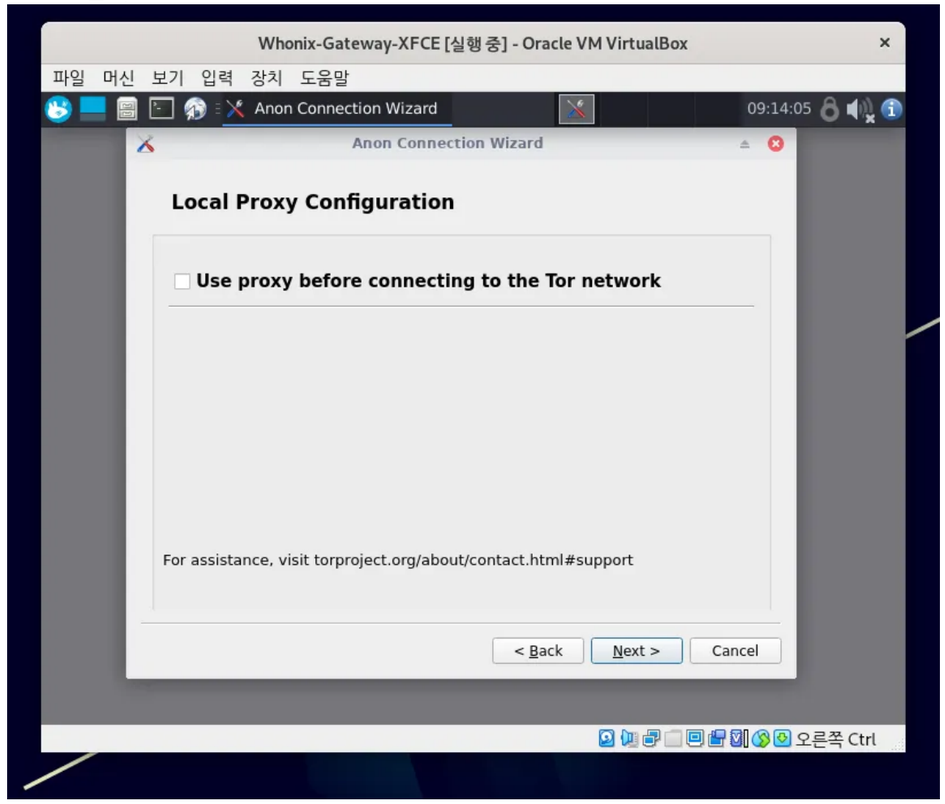
3. Configure 클릭


Whonix-Gateway-XFCE [실행 중] - Oracle VM VirtualBox
파일 머신 보기 입력 장치 도움말
Anon Connection Wizard
09:12:47
Applications
Anon Connection Wizard
Before you connect to the Tor network, you need to provide information about this computer's Internet connection.
Which of the following best describes your situation?
I would like to connect directly to the Tor network. This will work in most situations.
Connect
This computer's Internet connection is censored or proxied. I need to configure bridges or local proxy settings.
Configure
I do not want to connect automatically to the Tor network. Next time I boot, this wizard will be started.
Disable Tor
< Back
Next >
Cancel
오른쪽 Ctrl

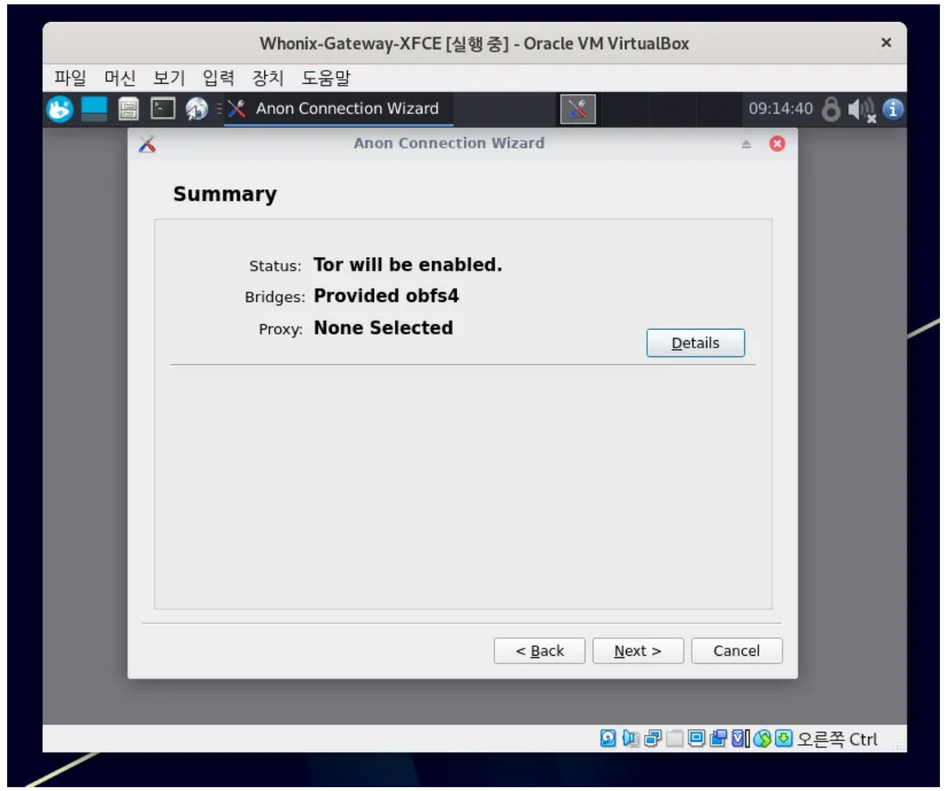
4. 'I need Tor bridges to bypass the Tor censorship' 클릭 후 Next 클릭



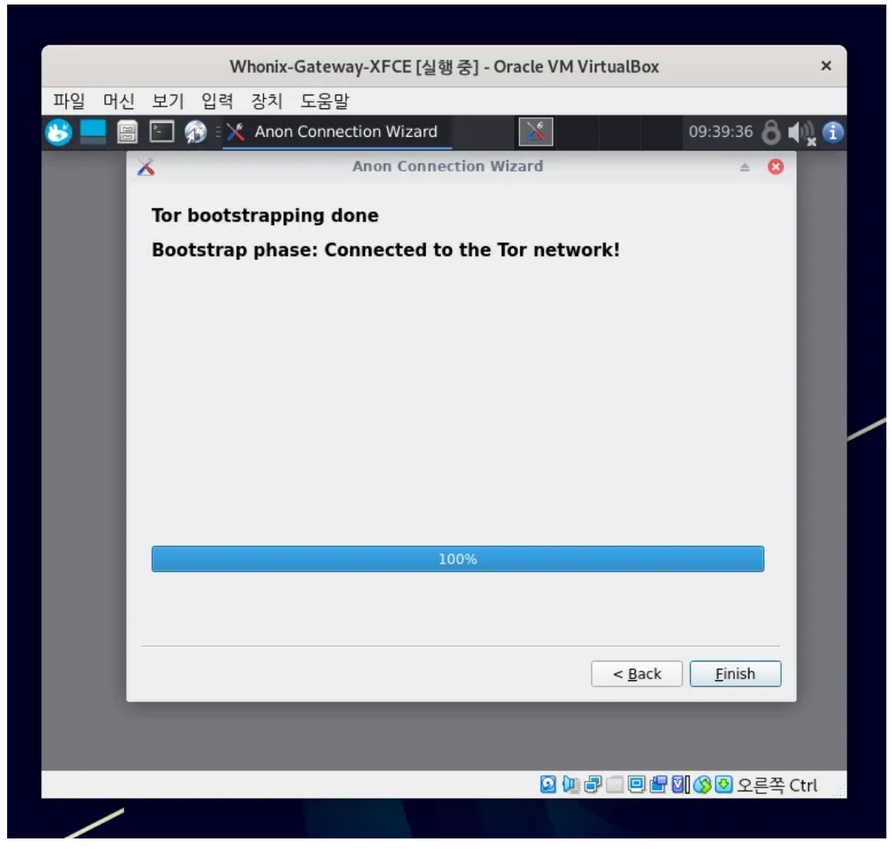
5. Next 클릭



6. Next 클릭



7. Finish 클릭



7. 설치 후

터미널에서 sudo passwd user을 입력해 기본 비밀번호인 changeme 에서 다른 것으로 바꾸어야 한다.

기본적으로 핑거프린팅 방지를 위해 시간대나 locale 등이 모두 미국 기준으로 맞추어져 있고 만약 한글을 사용하려면 따로 입력기, 폰트 등을 설치하고 시스템 설정을 약간 변경해야 한다.

Whonix-Gateway는 패키지 업데이트 등의 목적 외에는 켜두기만 하고 사용하지 않는다.

Virtualbox의 복제 기능[11]을 사용하여 기본 설정 정도만 끝난 깨끗한 Whonix VM의 복사본을 만든 후 만일 사용하던 VM이 오염되었다면 해당 VM을 삭제한 후 다시 새로운 복사본을 만들어 사용한다.

복제 기능을 통해 언제든지 오염되지 않은 깨끗한 상태로 돌아갈 수는 있지만 기본적인 설정이 모두 끝난 이후에는 되도록이면 live mode를 사용한다.

8. 관련 문서

- Tor
- 가상 사설망
- Tails OS
- GrapheneOS

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